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DISPOSITION FORM

For use of this form, see AR 340-15. The Disposition Agency is TAGO.

McGaw

REFERENCE OR OFFICE SYMBOL

SUBJECT

CRREL-EA

Reclaiming of Asbestos - Waste Sites in Hudson, NH (EPA Superfund Restoration).

TO
MFR

FROM

D. McGaw

DATE

13 Sep 83

CMT 1

MCGAW/mh

1. References: My Telephone Conversation Records of 27 May 83, 2 June 83, and 31 Aug 83, on same subject.

2. On 25 and 26 Aug 83, Dr. I. Iskandar and I traveled to Concord, NH, to give expert testimony for the U.S. Environmental Protection Agency (EPA) in Federal District Court, upon the request of Sheila Jones (Attorney for Dept. of Justice, Wash., DC) and Philip Boxell (Attorney for EPA Regional Office, Boston, MA).

3. The case involved a request by the United States for a Temporary Injunction under the Superfund regulations to gain access to six Johns-Manville asbestos-disposal sites in order to provide emergency cover of soil and grass. Two property owners (A. Mantarazzo and J. Bursey) were denying the U.S. access to the sites on the grounds that they not be held financially liable for the restoration (burial) of the toxic material.

4. Paul Heffernon (EPA) testified on the physical characteristics of the disposal sites.

5. Dr. Robert Sawyer, M.D., testified on the medical hazards of the asbestos waste (scraps, pellets, and fibers).

6. I testified on the depth of cover required to keep the asbestos material from being returned to the surface through the yearly process of freezing and thawing. The principle is simple: to keep the frost front from entering the hazardous layer by providing a depth of moist soil equal to the probable depth of freezing in that location. Using standard Corps of Engineers design procedures based on freezing indices, I calculated that the maximum depth of frost would be about 36 in. at Hudson, NH (fairly on the coast) for possibly one year in ten. I recommended an expedient depth of cover of 30 in. of sandy gravel or its equivalent as being sufficient to provide 50 to 100 years of protection. ✓

7. Alex Iskandar testified on the depth of organic topsoil needed to sustain a permanent grass cover over the asbestos material, which is very alkaline (pH of 11 or 12). He recommended at least 18 in. of topsoil, because it had been determined that the roots will extend to that depth. The remaining 12 in. of cover would be a sandy gravel, coarse enough to be of low frost-susceptibility and fine enough to contain sufficient moisture to support the vegetation at the surface. ✓

8. The decision of the court is attached. As Mr. Boxell states, the decision granted the U.S. everything the attorneys were asking for.

R. McGaw

RICHARD W. MCGAW
Research Civil Engineer
Applied Research Branch

CF: TD

Chief, P&P (One-stop service)

Chief, EED

Chief, ARB

Attachment 22

TELEPHONE OR VERBAL CONVERSATION RECORD

For use of this form, see AR 340-15; the proponent agency is The Adjutant General's Office.

DATE

2 June 1983

SUBJECT OF CONVERSATION

Reclaiming of asbestos waste sites in NH

INCOMING CALL

PERSON CALLING

ADDRESS

PHONE NUMBER AND EXTENSION

PERSON CALLED

OFFICE

PHONE NUMBER AND EXTENSION

OUTGOING CALL

PERSON CALLING

R. McGaw A. Iskandar
D. Gaskin

OFFICE

PHONE NUMBER AND EXTENSION

PERSON CALLED

Carl Eidam

ADDRESS

APA Office, Lexington, MA
E

PHONE NUMBER AND EXTENSION

FTS 223-7265

617-861-6700

SUMMARY OF CONVERSATION:

1. A conference call was made to discuss what the required minimum cover on the asbestos waste sites at Hudson, NH, and at Nashua, NH, should be.
2. Iskandar and Gaskin were convinced that 12 inches of topsoil is necessary for long-term survival of grass cover.
3. McGaw recommended a minimum of 18 inches of sandy gravel beneath the topsoil, to limit frost depth and if possible to contain the frost front within the cover materials.
4. Overall minimum cover is therefore 30 inches (2.5 ft) in frost-prone areas. Carl will incorporate this into the final funding request.
5. We were told that our expertise was greatly appreciated, and was instrumental in protecting the public welfare in these cases. It is likely (we were told) that our help will save many dollars and will result in a much more successful solution to the toxic hazard situation.
6. When work begins on the sites we will be contacted again.

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cf: D. Gaskin
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Attachment 2Y

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Attachment 22

REGION I

RIDGE AVENUE ASBESTOS SITE
HUDSON, NH

CONTRACT # 68-01-6893

APRIL 23-MAY 10, 1984

Oil and Hazardous Material Spill Section
Surveillance Branch
Environmental Services Division
60 Westview Street
Lexington, Massachusetts 02173
(617) 861-6700

May, 1984

Prepared by:

Paul R. Groulx, On-Scene Coordinator
U. S. Environmental Protection Agency

Asbestos cleanup faces early completion



Wash out

Wearing a protective suit, Norman Geis of Jet Line Services hoses down the face of an asbestos pile while a grader covers

it with clean fill at a Hudson dumpsite off Ridge Avenue. (Sun photo by Robert Wallace)

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PARTICIPATING PERSONNEL AND AGENCIES

Agency	Personnel
U.S. Environmental Protection Agency	
1) Oil & Hazardous Materials Section, Lexington, MA	Paul Groulx On-Scene Coordinator
2) Office of Regional Council, Boston, MA	Phillip Boxell
3) Office of Public Affairs, Boston, MA	Debra Prybryla
4) Office of Congressional Affairs, Boston, MA	Susan Sladek
5) Contracts Office, Washington, DC	Patrick Flynn
6) Office of Emergency Response, Washington, DC	Colleen Carothers
Roy F. Weston, Inc., Burlington, MA	Mark S. Hall Douglas R. Burns
U.S. Army, CRREL	Alex Iskandar Richard McGaw
Federal Emergency Management Agency, Boston, MA	Domenic A. Piso
U.S. Department of Health and Human Services	John Figler, CDC Region I Representative, Boston
State of New Hampshire	Brook Dupee, CERCLA Superfund Coordinator Gerald Grimmard, Air Resources Agency Tim Drew, Bureau of Solid Waste Management Pam Sprague, Bureau of Solid Waste Management Bill Coburn, CD Office of Disaster
Town of Hudson, New Hampshire	Robert A. Perreault, Town Engineer Francine Parkhurst, Selectman

Prime Contractor

O. H. Materials Co.-----Cleanup Contractor

Subcontractors

Jet Line Services-----Cleanup Subcontractor

ESA Laboratories, Inc.-----Air Monitoring Services Subcontractor

Hannon Investigation & Security, Inc.----Site Security Subcontractor

Lannan Corporation-----Heavy Equipment & Operators

Hudson Sand & Gravel-----Gravel/Loam Supplier

rk Stabile & Co.-----Loam Supplier

Green Key Horticultural-----Landscaping Subcontractor

Maynard & Paquette, Inc.-----Site Survey Subcontractor

ABSTRACT

The following report on the Ridge Avenue site in Hudson, NH is a chronological summary on the EPA - Region I, Oil & Hazardous Materials Spill Section response operation. The action taken, the resources committed, the effectiveness of removal and the on-scene coordinator's (OSC) recommendations are explained in detail.

The OSC's report was prepared according to the code of Federal Regulations/Title 40 - Protection of the Environment, part 300 subchapter J, superfund programs, article 300.56 Pollution Reports (revised as of July 1, 1983).

A Total of twelve (12) volumes of supportive material pertaining to the site has been assembled by the OSC in support of this document. This material is available in the EPA Regional Response Office in Lexington, Massachusetts (See attachment 10). This OSC report summarizes the OSC activities.

The Ridge Avenue site consists of a plateau area roughly 100' long by 50' wide and 30' high. This plateau area is made up of approximately 6,000 tons of assorted asbestos waste. This site is the eighth to be stabilized using superfund. For more information on the previous seven sites please refer to the OSC report dated April 6, 1984.

The problems of the site were brought to the OSC's attention on July of 1983 when the OSC received information via a telephone conversation with Ms. Jean Coolidge. Ms. Coolidge requested an inspection of her property to confirm her property contained asbestos.

The OSC and State personnel visited the site. They observed the asbestos and obtained sampling which were confirmed by analysis to be asbestos. In addition, officials from CDC visited the site and subsequently issued a health advisory indicating the nature of the hazard and recommendations for action by the EPA.

On November 1, 1983, the OSC received permission from the Millers and the Coolidges to enter their properties for a preliminary investigation of the site. The investigation began on November 10 when core samples were obtained to determine the extent of contamination at the site. The data from this investigation was combined with a topographical survey at the properties were then forwarded to the U.S. Army, Corps of Engineers on December 9.

On March 5, 1984, the OSC requested \$455,000 to initiate immediate removal action for the site. Included in the request was background on the site and potential health hazards to area residents. O.H. Materials was then issued a delivery order to draw up work and safety plans utilizing design specifications established by the Corps of Engineers.

The design specifications included addressing the steepness of the slope. The placing of 5" stone over gravel bare on the slope was to prevent erosion, and using 18" of loam over 12" of gravel was to promote the root development of the grass to be planted on the plateau

area.

On March 26, the OSC received approval of the request of \$455,000 of which \$400,000 is for extramural costs. The start-up date was set for April 23, 1984.

Mobilization occurred on April 23 and site activity began on April 24. The contractor first cleared the slope of trees and shrubs with calipers less than 3". Once that operation was accomplished, 12" of gravel was placed on the slope and 5" stone placed around the base of the remaining trees to insure aeration for the root-systems. This operation continued until all of the asbestos was covered thereby downgrading the protection level from C to D. Once the slope was covered, blasted rock was placed at the base of the slope to prevent slope failure. Finally, 5" stone was placed on the slope to prevent erosion.

When the slope was completed, loam was placed on the plateau area and seeded. This completed the emergency action at the Ridge Avenue site. A total of (\$132,038.48) had been expended for the Ridge Avenue site as of May 16, 1984.

SITE HISTORY

The Ridge Avenue (Coolidge) site in Hudson, NH, is a plateau area approximately 100' long by 50' wide and is approximately 30' high. Paul Groulx, (OSC-EPA) was contacted by Jean Coolidge of 12 Ridge Avenue on July 26, 1983. Ms. Coolidge reported to Groulx of possible asbestos contamination on her property. State and EPA personnel visited the site and collected bulk samples. These samples were analyzed on September 27, 1983 and the results showed the material to be friable asbestos. CDC personnel visited the site and subsequently issued a health advisory recommending to the EPA emergency action. (See Attachment 1)

On November 10, 1984, the Technical Assistance Team (TAT) visited the site to obtain core samples. These samples indicated that the asbestos on the plateau was at least 30" deep and had a soil cover ranging from 0" to 5". However, the slopes of the plateau consisted of uncovered pure bag house waste.

On November 8, 1983, The OSC met with U. S. Army Corps, CRREL, personnel to determine the course of action needed to stabilize the site. The OSC received specifications recommended by Corps personnel to adequately cover the asbestos on January 16, 1984. (See Attachment 2)

The Johns-Manville Corporation utilized this site and allegedly up to 100 other sites for the deposition of asbestos waste in the Hudson area. The deposited materials consist of friable and non-friable asbestos waste such as: bag house dust, pellets, sheets, and abollors. An estimated 6,000 tons of asbestos waste was deposited at this site approximately 30 years ago.

SITE LOCATION

The Ridge Avenue site is a plateau area of asbestos waste approximately 100 feet long, 50 feet wide and 30 feet high. A majority of asbestos waste is found on property owned by the town of Hudson, but the waste also extends on the Miller, Coolidge, and Howard properties. The 1/3 acre site is located on the east side of Ridge Avenue, 1000 feet south of the intersection of Ride Avenue and Rt. 111. The site is bordered on the east and south by First Brook, The north is bordered by the Miller property and on the west by the Coolidge property. Longitude - 71 26' 45", Latitude - 42 45' 45", USGS Nashua (North grid). (See Attachment 3)

CHRONOLOGICAL LOG

July 26, 1983

On Scene Coordinator (OSC) received a telephone report from Jean Coolidge requesting an inspection of her property concerning possible asbestos contamination. (See Attachment 7)

August 5, 1983

OSC and State representative, Tim Drew, visited the Coolidge property and confirmed a large area of suspected asbestos waste material. Bulk samples were collected to confirm asbestos contamination.

September 16, 1983

OSC met with John Figler and Jeff Lybarger, Center for Disease Control (CDC) and Brook Dupee, State of New Hampshire to inspect the Coolidge property. After the inspection, CDC personnel agreed the site warranted immediate action.

September 27, 1983

EPA personnel met at the Coolidge site to discuss possible future action. It was determined that assistance from U. S. Army CRREL personnel would be needed to provide technical assistance.

The OSC received the analytical results from Eastern Analytical Laboratories (EAL) of samples collected on August 5, 1983. These results indicated the material collected to be asbestos. (See Attachment 4)

October 4, 1983

The OSC received a health advisory from the CDC recommending action at the Coolidge property due to potential health hazards to the surrounding residential area. This hazard is due to insufficient cover over the asbestos waste. (See Attachment 1)

October 25, 1983

The OSC requested TAT to initiate a special project for a site survey, topographical map and a soil profile to determine the extent of the contamination. (See Attachment 3)

October 26, 1983

The OSC sent a request for technical assistance from the U.S. Army CRREL in Hanover, N.H. The OSC specifically needed guidance in addressing steep slopes, abutting wetland area and adjacent stream.

October 27, 1983

The OSC met with town engineering department representatives to review local tax maps to determine ownership of the property. The OSC informed town of possible impact to abutting wetland.

November 1, 1983

OSC and EPA Regional Council received permission from Miller and Coolidge to enter their properties for preliminary investigation of the site.

November 8, 1983

US EPA and Army Corps personnel reviewed the Coolidge property on site for the purpose of involving the Army Corp to design the specification for covering the site. Visited nearby Sand & Gravel pit to determine local available material.

November 10, 1983

Preliminary investigation was conducted (Core samples) to determine extent of contamination at Coolidge site. Extent of contamination included town of Hudson Property (main site), Coolidge, Miller, Howard and Ellis property.

December 9, 1983

OSC forwarded topography maps of recently completed survey that will be used in design specification plans to U.S. Army, Corps of Engineers.

December 21, 1983

OSC received confirmation from US Army Corps of their the availability to provide technical recommendations on proper soil cover under freezing conditions, monitoring requirements and maintenance to reclaim the Ridge Ave. waste asbestos site. Funding will be coordinated by the OSC with an Interagency agreement.

January 16, 1984

OSC received Army Corps design specifications for covering the steep slopes on site plus detailed calculations on the amount of material required to cover the deposit.

January 17, 1984

Final report received on TAT investigations which contained preliminary investigation of asbestos contamination, site survey, and topographic map.

February 28, 1984

Memo from D. Berger to B. Ikalainen, EPA, Boston regarding OWPE concern

of possible conflict in the agency's contracting the town in removal action. (Since Town is the principal owner of property). It is the consensus that the ERCS contract should be implemented in this removal action.

March 5, 1984

Action Memorandum requesting funds for immediate removal at Ridge Ave. site. Authorization is requested to obtain \$455,000.00 dollars to initiate immediate removal from site. Included is a background of the site, its relationship to previous other sites, the threat it may cause to area and its residents.

A outline of its proposed job and the costs is included with a breakdown of each expense to reach the total estimated costs requested.

March 13, 1984

Correspondence from Donald Berger to Mr. Robert J. Ohneck, O.' Materials Co. concerning the mid-April start of clean-up of Ridge Ave. site. Included was C.O.E. design specifications submitted for review. Requested for Safety plan after delivery order issuance, for any problems contact Paul Groulx.

March 23, 1984

A notification letter was sent by Merril Hohman, Waste Management Division, EPA-Boston, to the following; Ms Jean Coolidge, Ms Agnes Harwood, Mr. & Mrs. Ernest Miller, Mr. & Mrs. Harold Holt, Board of Selectmen, Hudson, NH, and the Johns-Manville Corporation. These letters notified of liability in connection with the Ridge Avenue Site. (See Attachment 9)

March 26, 1984

OSC received TWX from EPA Headquarters Washington approving request for \$455,000 (of which \$400,000 is for extramural cleanup contractor costs) to initiate immediate removal at Ridge Ave. site Hudson N H. (See Appendix Page 10)

April 2, 1984

OSC received memo from Richard McGaw US Army CRREL stating revision in specifications. Previous specifications were 18 inches of gravel and 12 inches loam, changed to 12 inches gravel and 18 inches loam, as a result of new field investigation by Army Corp.

April 16, 1984

OSC attended Selectmen meeting to brief the community Representatives on the upcoming Ridge Ave. project.

April 18, 1984

Polrep #1 was dispatched summarizing the events to date. (See Appendix Page 2)

April 20, 1984

Public Affairs Office representative distributed throughout Ridge Ave. neighborhood a notice to residents advising them of the anticipated work to be performed in the upcoming weeks.

April 23, 1984

Subcontractor (Jet Line Services) personnel mobilized equipment and trailers. The trailers consisted of a 24' office trailer and 24' decon trailer. Connections were made for electricity, water, drainage and telephone. The perimeter and zones were delineated and roped off.

The Miller and Coolidge families departed their homes in the area as part of the relocation plan. They will be allowed to return when the site is secured.

Background air monitoring was performed by ESA personnel. In addition to the air samples, swipe samples were obtained from abutting residences.

Site security was established and the street closed to public at 16:00 hours. Security will be maintained on a 24 hour basis until residents are returned to their homes.

April 24, 1984

A safety meeting was held between OSC and contractor personnel to review work and safety plan prior to commencing work.

Clearing and grubbing operations were completed by the end of the day. Front end loader on scene to assist in clearing operations.

Hudson selectman, Fran Parkhurst, and State Senator, Rhona Charbonneau arrived on scene to discuss operations with OSC.

OSC and contractor response manager visited Hudson sand and gravel to inspect the material to be used.

Edge cutting was performed on site to establish the extent of contamination.

Air monitoring operations commence. A total of four fixed stations and three personnel monitoring pumps were established.

April 25, 1984

The plateau area was covered with 12" of bank run gravel. Contractor personnel cleared and grubbed the area behind the Miller house and covered the two additional deposits of asbestos in that area with bank

run gravel.

TAT personnel collected eight asbestos samples for enforcement documentation.

April 26, 1984

OSC received memo from Debra Prybyla (EPA P.A.O.) containing information on reported suspected asbestos sites from local residents.

Slope stabilization operation begins utilizing Gradall to place gravel along base of the slope and 5" stone around the base of the trees on the slope. Bobcat on scene to place 5" stone on slope behind Miller house where the two deposits are located.

Gerry Grimard, NH Air Resource Division, arrived on scene to assist OSC in air monitoring program.

April 27, 1984

Gradall completed placing 5" stone around base of trees and continuing placing bank run gravel along the base of the slope.

OSC and Public Affairs Office coordinate press conference to be held on Monday.

O.H. Materials response manager, Pat Hoopes, is replaced by Al Blanchard.

Polrep #2 was dispatched summarizing the events to date. (See Appendix page 4)

April 30, 1984

The slope stabilization operation utilizing 12" of bank run gravel has been completed. The completion of this phase signifies that all exposed asbestos material has been covered. The level of protection was then downgraded from level C to level D.

OSC received from EPA-ERT personnel suggested air monitoring guidelines for asbestos sites. The OSC opted to maintain present procedures to insure continuity.

OSC met with media and local public officials to inform public of site progress.

May 1, 1984

OSC was requested by state of N.H. representatives to provide technical assistance to the town of Hudson in determining the extent of asbestos in the towns upcoming sewer installation project at Frenette Drive.

Gradall begins placing blasted rock (shot rock) along the toe of the slope to form a footing to stabilize slope material.

State representative for FEMA on scene to review status of relocated residents and establish return dates.

Howard Davis, Chief-Biology Section, on scene to review ESA performance in air sampling protocols at the request at the OSC. Davis found the performance to be satisfactory and no changes were recommended.

May 2, 1984

The footing along the base of the slope was completed and Gradall then began placing 5" stone on slope for erosion control. Loam was placed above gravel by the bobcat to cover the two additional deposits behind the Miller house.

May 3, 1984

The 5" stone operation was completed. Due to the exhaustion of the 5" stone supply, one and one half inch stone was supplemented to complete the operation.

Air monitoring operations terminated after final background samples were collected.

CDC regional representative, John Figler, arrives on scene with Georgi Jones, CDC superfund coordinator, to review site activities.

May 4, 1984

Loam operations were rescheduled due to heavy rains. Demobilization commenced as contractor personnel disconnected and removed the decon trailer and removed the front-end loader.

May 7, 1984

Due to heavy rains over weekend, the loam deliveries will not commence until late afternoon.

ESA personnel on scene to obtain interior and exterior swipe samples of area for background data.

U.S. Army Corp., CRREL personnel Alex Iskandar and Richard McGaw on scene to review the implementation of the work plan provided by the Army Corps. Iskandar also obtained soil samples for PH and nutrient analysis.

Note: While Army Corps. personnel were in area they visited the seven other sites. Soil samples were collected to determine PH and soil fertility. On site recommendations were to add a culvert to Bursey site, add a culvert at the Pointer site and correction of erosion problems that occurred at the site.

Polrep #3 was dispatched summarizing th events to date. (See Appendix Page 6)

Memorandum to OSC from Billie Perry I.A.P.M.B. Washington stating final costs for relocation of residents in first phase of Hudson-Nashua clean-up last year. Also stating \$26,858.16 remains on the current IAG for further use for the Ridge Ave. Site.

May 8, 1984

Bulldozer mobilized to spread loam on plateau area. 75% of loam operation has been completed. The operation was terminated in the afternoon due to heavy rain.

Site security was terminated as residents returned to their homes.

May 9, 1984

OSC received from Selectman Francine Parkhurst for review and comment a notice to the residents of Frenette Drive. Selectman and State will post the area to reduce activities on the site.

The loam operation was completed. The bulldozer was demobilized. A streetsweeper was hired to clean soil off Ridge Avenue, the accumulated from trucking activity.

The OSC was requested by State to assist in the Frenette Drive test pitting operation by the town of Hudson prior to sewer installation project commencing.

May 10, 1984

Landscape subcontractor (Green Key Horticulture) on scene to seed plateau area. Operation was completed by end of day.

OSC met with survey subcontractor (Maynard & Paquette, Inc.) outline requirements to record extent of asbestos contamination on site.

The Public Affairs Office was notified of completion of the project.

The office trailer was demobilized and O.H. Materials personnel departed site.

May 11, 1984

Public Affairs Office EPA released information stating the completion of the Ridge Ave. site Hudson, N.H.

May 14, 1984

Polrep #4 was dispatched summarizing the events to date. (See Appendix Page 8)

SITE OPERATIONS

The site at Ridge Ave. is a plateau with three steep slopes on its sides. The site extended out 100' long, 50' wide and 30' deep, operations are to cover and stabilize the site.

Operations started with mobilization of equipment and personnel. An office trailer and Decon trailer were set up on site.

Cleaning and grubbing operations began with the plateau area. The Plateau was completely cleared of all trees and brush for accessibility to the slopes by equipment. On the slope area all dead trees were removed, all trees less than 3" in diameter were cut and also any brush less than 4' high were removed. All undergrowth was left in place, cuttings were placed out of the work area on the lower plateau at the base of the slope to be covered during slope stabilization. Stumps left on the slope were left 18" high to help reduce slope failure.

Plateau stabilization was started after clearing operations were completed. Moist sandy gravel was brought in and spread with a front end loader. Grade stakes were placed to insure a uniform 12" cover and the edges were tapered to normal surface. With the 12" cover in place this stabilized the plateau and allowed for work on slope stabilization to begin.

With the completion of the Plateau stabilization work began on the slope. Major trees (3 inch diameter or greater) and major shrubs (4 feet or taller) had 5" stone placed around the base of the stump and up the slope to half the size of the crown. Material was placed by the Gradall and final placement was completed by hand.

At the base of the slope (or toe) to prevent slope failure a berm was built. This was constructed with blasted quarry stone (sizes ranging up to 2 feet in diameter). First a foundation of bank run gravel (Max 5" stone) was placed 12" - 15" deep to prevent the larger stone from sinking into soft earth causing failure. This foundation extended 5 feet beyond the base of the slope. After the foundation was in place the Gradall began placing the blasted stone with final placement done by hand, the berm extended past the foundation to approximately a 6 foot width and 5 feet deep. The berm extended approximately 250 feet around the base of the slope.

The completion of the berm allowed for the 12" - 15" cover of bank run gravel (Max 5" stone) to be brought in and placed. Because there was no sliding of materials this could be placed on the entire slope without having to do one section at a time. After the slopes were entirely covered with bank run gravel the whole site was covered and stabilized reducing the level of protection from level C to level D. With the bank run gravel all in place a cover of 6 inches with 5" stone was placed over the gravel securing the slope. The slope covering was extended over the top of slope 5 feet onto the plateau for erosion control.

Stone sand was brought in and placed around the edge of the materials covering the slope. This is to form a good bind between the loam on the plateau and larger materials on the slope. This is to prevent the loam from moving into voids in the stone causing a wash out area. Loam was placed on the plateau to 18 inches in depth. A bulldozer was brought in to do the final grading of loam.

With the loaming operation complete this concluded the capping operation and all equipment and personnel were demobilized. The landscaping crew then prepared the soil, limed, fertilized, and seeded the plateau to complete the whole operation.

There was a small deposit found on the peripheral area of the site. This was covered in the same manner as the slopes. By clearing and grubbing the area, placing bank run gravel, and cover with 5" stone. Some areas surrounding this area were seeded, this was done simultaneous with the slope areas and is completed just as the site is.

A final topographic map outlining the area of stone which define the extent of asbestos has been contracted out. This map will provide a permanent record of the asbestos. (See Attachment 2A/Army Corps Specifications)

SAFETY AND HEALTH

In May and June, 1984, personnel from the U. S. Environmental Protection Agency, Region I, Oil and Hazardous Materials Section were involved in the asbestos cleanup of the Ridge Ave. site in Hudson, NH. This results from the disposal practices of waste from the Johns-Manville Building Materials Manufacturing Division in Nashua, NH. The Johns-Manville plant dumped wastes composed of damaged and scrap fiber board and dust from plant flows and scrubber systems (called bag house waste).

EPA, through bulk sample analysis, documented contamination consisting of Chrysotile, and Amosite asbestos waste at the Ridge Ave. site. Personnel also visually confirmed evidence of asbestos contamination. The fact that the material is friable, potentially suspendable, and currently at the surface of the site constitutes a health risk from chronic long-term exposure to the general public, who have unhindered access to this site. (Reference Attachment #1 CDC Health Advisory)

The site was defined as hazardous and needed action to prevent exposure to respirable air borne asbestos fibers. Care was taken during the operation to prevent asbestos exposure to both the workers and the public. Water was continually used to contain and reduce the dust and asbestos from spreading to the air and adjacent properties.

Because the site constituted a health hazard by the presence of friable asbestos, and the ease of access by the general public, the site was covered with 30 inches of material, 12 inches of gravel, 18 inched of loam.

EPA in achieving its objective to contain and cover the sites in a safe and healthful manner, work and safety plans were prepared. The objective of the safety plan was to assign responsibilities to individuals involved to the project relative to safety and site security, to establish personnel safety and protection standards and mandatory safety operating procedures relative to chemical hazards encountered on the site. To establish contamination zones and decontamination procedures, and to provide for contingencies which may arise during the source of the emergency actions. (See Attachment 5 and 6)

The provisions of the safety plan were mandatory for all personnel who entered the site during emergency operations. This included being aware of the potential hazards associated with the substance on site, instructed in the safety policies defined in the plan, insured that appropriate safety equipment was available, and personnel utilized this equipment.

Uniformed security was contracted to maintain watch and restrict access to the site by the public once operations were underway. A delineation of zones was established in order to reduce contamination off site. Level "C" was the normal level of protection during site activities unless otherwise noted.

Respirator fit test was performed on all personnel entering the "Hot Zone". Decontamination procedures were followed as outlined in the plan. A decon trailer was available with shower at the command post.

Air Monitoring operations, which consisted of bulk, swipe and air samples were obtained, as specified by the OSC. Four fixed high volume air stations were set for area readings, three personnel monitor pumps to comply with OSHA standards and to observe exposure to personnel. Swipe and bulk samples were taken in homes and the area. The site was monitored before, during and after cleanup activities to establish if any previous contamination and after to see if any contamination was created. No monitoring was performed during rainy days.

Samples were analyzed by phase contrast optical microscopy with the approved NIOSH procedure "P and CAM 239". The collected air filter samples were rendered completely transparent by chemical digestions. The fibers were then counted by phase contrast optical microscopy methods at 600x normal magnification. (See Attachment #4)

All results found were below the detection limit of 0.01 fibers/cc of Air. In all cases fiber concentrations should either take a decreasing trend or be consistently low level, with the progression of on site work. Daily fluctuations were due to changes in environmental and working conditions.

A total of sixteen (16) swipe and bulk samples were taken in and around the working sites. The samples were collected in Millipore, 8um cellose acetate. The samples were analyzed using polarized light microscopy techniques for partial identification.

In conclusion, hazards may be broadly defined into two categories these which are actual and present, and those which are potential, but not yet realized. In the case of asbestos hazards, the air samples provide a measure of any present hazard. The bulk samples and site inspection gauge the potential hazard at any location. The swipe samples yield a history of airborne levels previously experienced.

From EPA air monitoring program and results, it was concluded by the air monitoring contractor, ESA Laboratories, that no excess airborne asbestos was released at the monitoring locations during the time of sampling.

In conclusion, the safety and work plan, and recommendations of the CDC Health Advisory were followed in formulation a successful cleanup. Two families were relocated by FEMA due to the close proximity to the sites, and the assurance that the homes were closed. This prevented any particulate from entering and contaminating the private residences, insuring not only the public health but thereby reducing environmental impact.

Safety was a major factor in this operation. No injuries occurred to personnel and no contamination was received. The weather was favorable due to the wet season with plenty of rain reducing the risk of material becoming airborne. Safety meetings were given every

morning so personnel would be aware and have knowledge of what operations and procedures were to be followed. The key to the safety was the enforcement of the safety plan by EPA staff. The plan must be enforced by personnel with knowledge of safety and safety equipment. Policy must be followed precisely and exact with no breakdown in procedure otherwise it will prove useless.

EPA COMMUNITY RELATIONS PLAN

Involvement with the community representatives and concerned citizens was developed by the OSC in the planning process. The EPA Superfund Community Relations Coordinator provided advance information to the nearby residents on the upcoming project, and made press releases as needed to the TV, Radio and press.

The work plan was outlined by the OSC and presented informally to the community and its citizens at a public meeting prior to the actual work start up.

Interested officials, press and news media, and residents were briefed at weekly press meetings and the OSC scheduled site visits.

The community designated a Selectman and its Town Engineer as the contacts between the OSC and the community in order to be kept up to date on daily activities at the site.

Constant communication by the OSC and the designated community contacts was the key to a successful program.

In the case of relocations, the OSC and the FEMA representative would meet and outline the scope of the program, the time frame and duration of relocation with each relocated family. Families were reassured that their home would be protected by security while the homes were vacant.

The weekly press conferences proved to keep the public informed. The fact that the public was being briefed of the ongoing activities satisfied the general public concern and interest. By keeping the local representative informed, the community was in turn kept informed.

In order for the OSC to keep EPA, State, local and other representatives informed, weekly Pollution reports (POLREPS) were sent out on this incident. (See Appendix Pages 1-11)

In conclusion the OSC's concept proved to be very effective at the Ridge Avenue Asbestos Hazardous Waste Site. It channeled communication in one direction, and created a single figurehead for contact and coordination during the emergency action on site.

ENFORCEMENT

Region I originally became involved in this matter in August, 1980, when a Boston television news team did a four part documentary on asbestos waste in Hudson, New Hampshire. Johns-Manville, disposed of the asbestos on each of the sites and apparently many other covered areas in Hudson and Nashua, New Hampshire.

EPA filed a civil action in Federal District Court in June, 1981 and has since been involved in long and difficult negotiations with Johns-Manville and the landowners over who should cover the asbestos laden areas, how much cover is necessary to provide adequate protection, and who should remain responsible for the sites after they are covered.

Because Johns-Manville filed for Chapter 11 bankruptcy on August 26, 1982, and since there is little prospect that Johns-Manville was willing, ready or able to cover these sites in the near future, Region I decided to investigate the use of Federal monies available under Superfund to pay for covering the site. Such action essentially converted this complicated civil action for equitable relief into a cost recovery action.

The enforcement personnel from the EPA Region I Regional Council's Office visited the site on many different occasions. The enforcement officer was kept informed of site activities through the pollution reports (Polreps) and constant communication between the OSC and the Regional Councils representative assigned to the case.

In late 1983, the Technical Division Office of Waste Programs Enforcement, Washington, commenced gathering information for cost documentation and recovery action.

EPA COMMITTED RESOURCES

EPA resources committed under this Emergency Action from October, 1983 thru May, 1984. CERCLA funded operations are as follows:

Personnel

On-Scene Coordinator (OHM Section Personnel)	0.20 man years
Project Officer (OHM Section Personnel)	0.02 man years
Technical Assistance Team (Roy F. Weston, Inc.)	0.35 man years
EPA Region I Laboratory (Analysis)	0.01 man years

NOTE: 2080 Hours = 1 man year

FINANCIAL SUMMARY

CERCLA Funding Obligation between October, 1983 through May, 1984

- | | | |
|----|--|--------------------------|
| 1. | O. H. Materials Co
Contract # 68-01-6893
Certified Invoices (as of 5/16/84) | \$103,266.00 |
| 2. | U. S. Army, CRREL
Engineering Specifications
DW# 96930784
Inter-Agency Transfer (\$15,000) | \$ 10,765.00 |
| 3. | Federal Emergency Management Agency
(FEMA)
DW# 58930241
(Relocation Costs)
Inter-Agency Transfer (26,858.00) | \$ 1,604.50 |
| 4. | Roy F. Weston, Inc.
Technical Assistance Team
Total Program Cost (as of 5/16/84) | \$ 14,443.00 |
| 5. | U. S. Environmental Protection Agency
(Reimbursable Cost) | 1,959.98 (as of 5/25/84) |

NOTE: Reimbursable expenditures for EPA personnel include travel, overtime hazardous duty pay, and mileage.

TOTAL OBLIGATED COST TO DATE	\$132,038.48
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EPA Authorized Project Funding Approval \$455,000.00

BALANCE \$ 323,961.52

* see FEMA Interagency Report

:

FEMA - INTERAGENCY REPORT

In following recommendations of CDC Health Advisory, EPA relocated residents through an Interagency Agreement with the Federal Emergency Management Agency (FEMA). A funding budget previously existing for \$26,858.00 was available under an Interagency Agreement with FEMA and was utilized.

FEMA delegated the responsibility of field relocation to the State of New Hampshire Division of Welfare in Concord, NH.

During the period from April 3, 1984 through May 8, 1984, two residences were relocated at the request of the EPA, OSC to FEMA.

1. Miller Residence

Ernest and Pauline Miller	April 23 through May 5, 1984
10 Ridge Avenue	(2 Adults)
Hudson, NH	

Relocated to the Hudson Motor Inn
TOTAL \$1,161.16

2. Coolidge Residence

Jean M. Coolidge	April 23 through May 17, 1984
12 Ridge Avenue	(1 Adult)
Hudson, NH	

Moved in with friends
TOTAL \$ 443.34

Relocation cost consists of Lodging, weekly/daily expenses, administration cost to State of New Hampshire and field representative.

TOTAL FEMA COST OBLIGATED \$1604.50

U.S. ARMY - INTERAGENCY REPORT

Because of the unique situation of the Coolidge Asbestos Waste Site, EPA requested Technical Assistance from the U.S. Army Corps of Engineers for its expertise in covering previous sites.

The Interagency request was to provide technical recommendations on proper soil cover under freezing conditions, monitoring requirements, and maintenance to reclaim waste asbestos disposal sites.

Funding transferred to CRREL will cover time, overhead, travel and miscellaneous expenses for a Civil Engineer and Soil Chemist. (See Attachment 2 and 8)

During the period of April through May, 1984 the following obligations were incurred: As of April 25, 1984 -- \$10,765.00

EFFECTIVENESS OF REMOVAL ACTION

1. Responsible Parties

Neither Johns-Manville corporation nor the landholders of the site where the asbestos waste was disposed have taken measures to adequately prevent the fibers from becoming airborne thereby producing a threat to public health and safety.

2. Local Agencies

The community of Hudson, N.H. was involved as the major owner of the site and declined taking action in the clean up. However, the local community through the Selectmans office supported EPA activities, by designating a selectman to maintain communications, and provide support as required by the OSC. The designated Selectman Francine Parkhurst is to be commended on her support, interest and concern for asbestos waste as a problem within the community.

3. State Agencies

The State of New Hampshire lacked the financial resources to initiate removal actions, however, the state did support the federal action, by supplying technical assistance in air sampling stations, data interpretation and engineering assistance in field engineering decisions.

In addition, the state assisted in implementing good community relations during the federal clean-up action.

4. Federal Agencies

Removal actions performed by the federal government were effective and did succeed in effectively covering the Ridge Avenue site. The site action mitigated the hazards of airborne asbestos to the public health and halted continued release of hazardous substances and waste to the environment.

Federal action at this site involved four separate distinct federal agencies who contributed to the emergency action.

- (a) The U.S. Environmental Protection Agency, Environmental Service Division, Oils Hazardous Materials Section. Lexington, MA

Coordinated the federal cleanup, directed the prime contractor in implementing the work and safety plan, and monitored cost and expenses obligated to abate the emergency action.

- (b) U.S. Department of Health and Human Services

CDC Regional Superfund Representative from the Center for Disease Control assigned to EPA Region I Boston/coordinated

the inspection by CDC Health officials to determine if a health hazard existed. CDC officials issued a health advisory recommending immediate action at the site.

- (c) U.S. Department of the Army
Cold Region Research & Engineering Laboratory Corps of Engineers. .
Hanover, N.H.

The Army Corps personnel assisted the EPA in engineering consulting, on site inspection, and provided the design specification for covering the steep slopes on the waste asbestos deposit.

- (d) Federal Emergency Management Agency (FEMA)

Supported the EPA emergency action by coordinating and handling the required relocations of two residential homes abutting the site. Fema coordinated the relocation of the two families by delegating its authority through the State of N.H. Division of Welfare to expedite the action.

All the federal agencies involved provided the EPA excellent support in a timely manner throughout the emergency action.

FEMA, with its experience provided a speedy relocation of the displaced families.

CDC provided a health advisory with health recommendations.

The Army Corps of Engineers provided the design specification for cover of the site. It should be noted that the army also assisted EPA in the last seven sites, and with its cold weather background and expertise proved very effective in assisting EPA in providing a satisfactory cover, with supporting documents for its engineering specifications.

In conclusion, the effectiveness of this site action proved successful because of proper work and safety plans, the design specifications, and the timing of the season. It is the OSC's opinion that the best time to be effective in working on a asbestos site is in the spring, when the asbestos is wet, damp, and nature provides adequate rain to control airborne asbestos problems.

5. Contractor

- (a) O.H. Material Company, Inc. was the prime contractor under the new Zone I Emergency Response Contract (ERCS) for the over all job. This included construction, transportation, and security of the project. O.H.M., Inc. personnel completed the required work task under projected time frame, and under the estimated budget in a safe and professional manner.

This contract mechanism proved to be an effective tool in assisting the OSC in abating the emergency. All contractor and subcontractor personnel excelled in the performance of their assigned tasks.

PROBLEMS ENCOUNTERED

1. Intergovernmental

There were delays at the onset of this project regarding Inter-Agency agreements with FEMA and the U.S. Army. After EPA requested emergency action within these agencies the response proceeded rapidly on the regional level, however, on the national level, the paper work followed the normal slow channels.

It seems that the mechanism for emergency action on the national level for Inter-Agency mechanism is nonexistent. However, federal agencies do cooperate and work well together and the project was a success on good faith and trust within the region Inter-Agency system of cooperation and mutual assistance.

2. Program Implementation

Since the Ridge Ave. site was the 1st ERCS Contract implemented in the Region I, many questions existed in the first few days of the contract. As the job progressed, the OSC and the prime contractor smoothed the rough edges and the project was completed ahead of schedule and under the estimated budget. It should be noted the prime contractor was the interface that the OSC coordinated with. All subcontractors reported to the prime, and maintained a chain of command on site. Work progressed rapidly and was well coordinated. It should also be noted that a strict safety program was also implemented along the same guideline and chain of command.

Support from the Contracting office at Headquarters was very supportive in assisting the OSC on this contract.

3. Site Activities

Problems encountered on site were, in general, normal and weather dependent. The major problem on site which delayed the project was the heavy rains during the loam operation. It is a standard construction problem in dealing with loam, that it cannot be delivered, worked or graded while wet. However, the wet weather was advantageous in the earlier stages of the operation in keeping the asbestos damp.

4. Contractor

The problems encountered with the prime contractor was based on the inability of the prime contractor to give the OSC accurate daily costs due to billing practices of subcontractors. These practices coupled with the large number of subcontractors impede the OSC in tracking project cost obligations.

RECOMMENDATIONS

1. Prevention of Similar Discharges

Proper regulations and enforcement of hazardous waste generators, transportation, storage and disposal facilities will prevent the recurrence of a similar discharge/release in the future. Because of poor record keeping and monitoring of sites used to dispose of the waste asbestos in the past the situation has become critical to the residents of Hudson and Nashua, New Hampshire.

The monitoring, regulating and enforcement of asbestos regulations must be strongly implemented to prevent a public health threat in the community. This must be carried out at the local and state level with federal support to eliminate the origin of any future public health threat of this kind.

Because asbestos is prevalent throughout the country, experience in this community has shown that the public is not convinced of the health effects of asbestos. This is probably due to the fact that there is such a long delay in the effects of contamination, as much as 15 to 40 years before health problems manifest. It is this OSC's opinion that the public must be made aware of the problem of asbestos, and how to deal with it.

The community of Hudson because of its proximity to the Johns-Manville facility in Nashua, its urban setting was utilized extensively for a disposal area. The asbestos waste products were usually given to landowners as free fill.

In the OSC's opinion, the following recommendations are as follows:

- A. The community should document the location of all areas where asbestos is observed, actively maintaining a master file.
- B. Guidance to the community should be provided by the State of NH.
- C. Support by all involved federal agencies should be readily available to the state to deal with this problem.

2. Intergovernmental

In so much as this action was a immediate emergency response, and that the OSC will not be available to monitor the sites in the future is the OSC's concern that the following should be implemented.

- A. The current cleanup actions should be seen as a component to an area wide program of asbestos waste site identification, stabilization, and inspection.
- B. The governmental agency responsible for periodic post-action

inspection should be identified and charged with designing an inspection plan that will provide periodic evaluation and repairs of all asbestos sites.

- C. In the matter of asbestos being present on existing land, some method of tracking, or record keeping on the local level should be established. Negotiations with land owners and the local government regarding land use and deed restriction has important public health implications. The locations of all buried asbestos should be recorded in a central file, so as not to create a new public health threat or problem.
- D. A local or state contingency plan should be immediately implemented to track and monitor any activity that might be proposed at an existing asbestos site, and procedures on how to deal with the material if found. It is also recommended that some long term plans be implemented to monitor the newly covered site recently covered by EPA to insure the cover remain secure and intact.

3. Program Implementation

Personnel resources must be readily available to the OSC.

A constant communication link must exist between the OSC and the contracting officer to alleviate contractor related problems.

The use of TAT contractor resources, particularly in assisting the OSC in the field and in cost control and documentation proved invaluable in terms of both time and cost savings and is preferable to utilizing clean-up contractors services for similar tasks.

In terms of this specific emergency removal action concerning Inter-Agency agreements, it is this OSC's opinion and recommendation that the Inter-Agency agreements be delegated, defined and coordinated at the regional level for all emergency removal actions. This is required in order to expedite proper response and support utilizing the Regional Response Team mechanism as specified in the National Contingency Plan. By coordinating on the regional level the Inter-Agency agreements can be streamlined and worked out as required on the local level.

The OSC would like to commend FEMA and the U.S. Department of the Army Corps of Engineers in supporting EPA in its emergency response in good faith, until the Inter-Agency agreement could be finalized, and filtered down to the regional level.

4. Site Activities

An effective community relations plan for sites is essential to the OSC and the agency. Feed back from citizens provided positive media relations and positive intercommunity relations.

Effective work plans and site safety plans are instrumental to the

success of this type of project. The safety plan implemented in this project did not inhibit the execution of the work plan and resulted in a safe environment for the workers and public.

In conclusion the OSC concept proved to be very effective at the Ridge Ave. hazardous waste site. It channeled communications in one direction, and created a single figure head for contact during the emergency action on site.

NEW SOURCES

During the emergency action from April through May, 1984 the OSC received several calls from concerned land owners and citizens. These calls were referred to the State for further investigation.

<u>DATE</u>	<u>LOCATION</u>	<u>REPORTED BY</u>
4/26/84 (D.P.)	Lion's Hall Building (Rear of Building) Lions Avenue Hudson, NH	James Glenn Travers Street Hudson, NH 889-2873
4/26/84 (D.P.)	Vadney Property 3 Burton Street Hudson, NH	Anonymous and Newspaper

As a result of State investigations, none of the above sites were referred to the EPA for further action.

APPENDIX 1

Polrep # _____

DATE _____

POLREP DISTRUBITION LIST

Johns-Manville Asbestos sites, Hudson N.H.
Ridge Ave. site

 X National Responce Center

 X EPA Spills, Washington, D.C.

EPA BOSTON - JFK

 X Mike Deland, Regional Administrator

 X Paul Keough, Acting Deputy Regional Administrator

 X David Pickman, Office of Public Awareness

 X Mel Hohman, Director, Waste Management Division

 X Phil Boxel, Office of Regional Counsel

 X Steve Ells, Office of Intergovernmental Affairs

 X John Figler, CDC Superfund Representative

EPA LEXINGTON

 X Ed Fitzpatrick

 X Ed Conley

 X Don Berger

 X Paul Groulx (Hudson File, Ridge Ave. Site)

 X POLREP FILE (original)

OTHERS

 X State of New Hamshire
Brook Dupee

 X Contracting Officer
Patrick Flynn

DATE: 10 APRIL 1984

SUBJECT: POLREP-1- IMMEDIATE REMOVAL ACTION JOHNS MANVILLE-PHASE 2

LOCATION: HUDSON N.H. (PIDGE AVE. SITE)

POLLUTANT: ASBESTOS

OCURRENCE DATE: UNK

ENVIRONMENTAL MEDIUM AFFECTED: GROUND, AIR

SEVERITY: MAJOR

QUANTITY DISCHARGED: EST. 6000 TONS

CATEGORY: UNSHORE NONTRANSFORMATION

SOURCE: HAZARDOUS WASTE SITE

CHARGE: DUMPING

REGION: 1

OSCI: U.S. EPA REGION 1, OIL AND HAZARDOUS MATERIALS SPILL SECTION

LATEST POLLREP: N/P

REMARKS:

SITUATION:

4. SITE HISTORY

THE PIDGE AVE. SITE IS A 1/3 ACRE LOT OF LEAD OWNED BY THE CITY OF HUDSON N.H. CONTAINING ASBESTOS FILL. THE SITE IS APPROXIMATELY 36 YEARS OLD. JOHNS MANVILLE CORP. DUMPED 6000 TONS OF ASBESTOS WASTE ON THIS PEEB CONTAINING ASBESTOS LEADED. TABLE TONS, AND FAC HOUSE WASTE. THE CONTAINMENT WAS PLACED IN A GRAVINE AND IS EXPOSED ON THE GROUND SURFACE AND ALONG THE STEEP SLOPE OF THE SITE.

JOHNS MANVILLE UTILIZED SOME 100 SITES IN THE HUDSON-NASHUA AREA DEPOSITING APPROXIMATELY 20,000 TONS OF ASBESTOS WASTE. SINCE JOHNS MANVILLE DECLARED CHAPTER 11 BANKRUPTCY THESE SITES WERE COME UNDER EMERGENCY REMEDIAL ACTIONS BY THE EPA UNDER SUPERFUND. THIS SITE IS SEVERATE FROM SEVER(7) SITES COMPLETED SUPERFUND 1982.

ACTION:

1. CIO HEALTH ADVISORY ISLET ON JUNE 13, 1983
2. RECOMMENDATION TO PROCEED WITH IMMEDIATE REMOVAL ACTION RECEIVED FROM MEMBERSHIPS ON MARCH 26, 1984. EPA WASHINGTON APPROVE 4455.000 FOR CLEAN-UP ACTIVITY. (\$422,000 ARE FOR EXTRAHERAL CLEAN-UP CONTRACTOR COST.)

SUBJECT: JUNE 2 - IMMEDIATE REMOVAL ACTION: JONES-ARVILLE-PHASE 2
LOCATION: WASHUR, NH (BRIDGE AVE. SITE)
POLLUTANT: ASBESTOS
OCCURRENCE DATE: UNK
ENVIRONMENTAL MEDIA AFFECTED: GROUND, AIR
SEVERITY: MAJOR
QUANTITY DISCHARGED: EST. 6,200 TONS
CATEGORY: ONSHORE/INTERMEDIATE TRANSPORTATION
SOURCE: HAZARDOUS WASTE SITE
CAUSE: DUMPING
DESIGN: 1
DEC: USEPA REGION 1, OIL & HAZARDOUS MATERIALS SECTION
LATEST POLREP: POLREP 1, 12 APRIL 1984
REMARKS:

ATTENTION:

1.) SITE MOBILIZATION COMPLETED ON 23 APRIL 1984

CLEARING AND GRUBBING OPERATIONS STARTED ON 23 APRIL 1984

BACKGROUND AIR MONITORING BEGAN ON 23 APRIL 1984

2.) CLEARING AND GRUBBING OPERATIONS COMPLETED 24 APRIL 1984

BACKGROUND AIR MONITORING COMPLETED

3.) PLATEAU AREA STABILIZED ON 25 APRIL 1984

4.) OBLIGATION TO DATE: (AS OF 4/27/84)

G.M. MATERIALS, INC.

CEILING	OBLIGATED	BALANCE
\$250,000	\$35,862.50	\$214,137.50

A. CONDUCT INITIAL INSPECTIONS/FINAL WORK PLAN DUE 4/16/84 / START WORK 4/23/84.

4. INTERAGENCY AGREEMENT BETWEEN ARMY CORPS OF ENGINEERS AND FEMA TO PROVIDE TECHNICAL AND RELOCATION ASSISTANCE TO THE OSC HAS BEEN REQUESTED TO EIT HEADQUARTERS WASHINGTON.

5. NOTIFICATION LETTERS WERE SENT TO ALL PARTIES INVOLVED ON MARCH 23, 1984 BY REGIONAL COUNCILS OFFICE.

FUTURE PLANS:

1. MEET WITH LANDOWNERS AND REPRESENTATIVES FROM FEMA CONCERNING RELOCATION PLAN.

2. MEET WITH CONTRACTOR TO FINALIZE WORK PLAN.

3. MEET WITH TOWN HALL SELECTMEN TO DISCUSS PROJECT.

4. OSC COORDINATING EMERGENCY ACTION PLANS WITH STATE N.H. REPRESENTATIVES.

5. ANTICIPATE WORK WILL COMMENCE ON APRIL 23, 1984.

action:

1.) SLOPE STABILIZATION STARTED ON 26 APRIL 1984

2.) OPERATIONAL AIR MONITORING: DURING CLEAN-UP AND FILL OPERATIONS) BEGAN ON 23 APRIL 1984

FUTURE PLANS:

1.) UPON COMPLETION OF SLOPE STABILIZATION, THE PLANTED GRASS WILL BE COVERED WITH TOPSOIL AND THEN SEEDS.

2.) IT IS ANTICIPATED THAT WORK WILL CONTINUE FOR TWO MORE YEARS.

LOCATION: HUDSON N.H. (BRIDGE AVE. SITE)
POLLUTANT: ASBESTOS
OCCURRENCE DATE: UNK
ENVIRONMENTAL MEDIUM AFFECTED: GROUND, AIR
SEVERITY: MAJOR
QUANTITY DISCHARGED: EST. 6000 TONS
CATEGORY: ONSHORE NONTRANSPORTATION
SOURCE: HAZARDOUS WASTE SITE
CAUSE: DUMPING

REGION: 1

DSC: U.S. EPA REGION 1, OIL AND HAZARDOUS MATERIALS SPILL SECTION

LATEST POLREP: 16 APRIL 1984

REMARKS:

SITUATION:

CLEARING AND GRUBBING OF SITE COMPLETED 24 APRIL 1984

12 INCH STABILIZATION COVER OF BANK RUN GRAVEL COMPLETED 1 MAY 1984

TOE OF SLOPE (SHOT ROCK) AROUND PERIMETER OF BASE COMPLETED 2 MAY 1984

6 INCH STONE COVER ON SLOPE COMPLETED 3 MAY 1984

ALSO COMPLETED TWO OTHER COVERINGS OF EXPOSED ASBESTOS ON PERIPHERAL AREAS
ADJUTING MAIN SITE

ACTION:

AIR MONITORING COMPLETED AS OF 4 MAY 1984

DEMOLITION OF HEAVY EQUIPMENT COMMENCE AT 0700 4 MAY 1984

ONE RELOCATED FAMILY BEING ALLOWED TO RETURN TO THEIR HOME, THE OTHER
SCHEDULED ON 6 MAY 1984

FUTURE PLANS:

HEAVY PAID DELAYING WORK OPERATIONS, TENTATIVELY RESCHEDULED FOR MONDAY
7 MAY 1984

DELIVERED TO SITE (3 MAY 1994)
CONTRACT #8801693
D.M. WATERHILLS

CELLING

\$250,600

THREE YEARS.

19725
8818

OBLIGATION

\$33,477

BALANCE

\$156,522

LOCATION: HAMMERS NH (RIDGE AVE SITE)
POLLUTANT: ASBESTOS
OCCURRENCE DATE: UNKNOWN
ENVIRONMENTAL MEDIUM AFFECTED: GROUND, AIR
SEVERITY: MAJOR
QUANTITY DISCHARGED: EST. 6,000 TONS
CATEGORY: ONSHORE/TRANSPORTATION
SOURCE: HAZARDOUS WASTE SITE
CAUSE: MINING
REGION: 1
OSC: USEPA OIL & HAZARDOUS MATERIALS SPILL SECTION
LATEST POLREP: POLREP 3, 7 MAY 1984
REMARKS:

ATTENTION:

SITE COMPLETED AND SECURED. AS OF 5/11/84, ALL EQUIPMENT, PERSONNEL, AND TRAILERS REMOVED FROM SITE.

THE SITE WAS CLEARED, AND TREES WERE SELECTIVELY REMOVED ON THE SLOPE TO ALLOW EQUIPMENT ACCESS TO INSTALL REQUIRED COVER. THE SITE, 1/3 ACRE IN AREA, CONSISTED OF A PLATEAU EXTENDING OUT 100 FEET. THIS PLATEAU WAS COVERED WITH 12 INCHES OF BANK RUN GRAVEL AND THEN 18 INCHES OF SANDY LOAM. THE SLOPE, WITH AN INCLINE AS MUCH AS 60 DEGREES AND 30 FEET IN HEIGHT, WAS COVERED WITH 12 INCHES OF BANK RUN GRAVEL. A BASE OR FOOTING AT THE TOE OF THE SLOPE WAS BUILT TO STABILIZE THE WALL WITH BLASTED QUARRY STONE (BROT ROCK). THIS BASE WAS 4 FT HIGH AND 6 FT WIDE. A 6 INCH COVER OF 5 INCH STONE WAS THEN APPLIED OVER THE GRAVEL FOR EROSION CONTROL. A TOTAL OF 164 LOADS OF GRAVEL, 88 LOADS OF STONE AND 24 LOADS OF LOAM WERE BROUGHT ON SITE. THE STONE WAS GENTLY PACKED ON THE SLOPE BY A GRADALL AND HAND LABORERS.

DESIGN AND ENGINEERING SPECIFICATIONS FOR THE SITE WERE PROVIDED BY THE U.S. ARMY CORP OF ENGINEERS COLD WEATHER RESEARCH LABORATORY IN HANOVER, NH.

FAMILIES FROM TWO ADJUTING HOMES WERE RELOCATED FOR THE DURATION OF THE PROJECT. FEMA COORDINATED THE ARRANGEMENTS THROUGH THE STATE OF NEW HAMPSHIRE.

AIR MONITORING WAS PERFORMED DAILY DURING SITE ACTIVITIES BY ESA LABORATORIES. FIXED PERIMETER AIR STATIONS, PERSONAL MONITORING PUMPS ON WORKERS, BULK SAMPLES AND SWIPE SAMPLES FROM THE SURROUNDING HOMES WERE COLLECTED. RESULTS SHOWED NO ASBESTOS ABOVE DETECTION LIMIT ON ALL SAMPLES COLLECTED. (SITE WAS CONTINUALLY WATERED DOWN WHILE ACTIVITIES WERE ONGOING.)

COST OF PROJECT UNDER BUDGET DUE TO DESIGN AND ENGINEERING SPECIFICATIONS PROVIDED BY THE U.S. ARMY CORPS. GOOD WEATHER AND FAVORABLE CONDITIONS ON SCENE WITH NO PROBLEMS ENCOUNTERED. OSC HAS REQUESTED THAT PERIODIC SITE INSPECTION AND FUTURE MAINTENANCE BE CONDUCTED BY THE STATE OF NEW HAMPSHIRE.

OSC REPORT TO BE COMPLETED BY 5/25/84.

FUTURE PLANS:

EPA-OSC WILL MONITOR SITE WHEN IN AREA UNTIL GRASS COVER HAS BEEN ESTABLISHED FOR EROSION CONTROL. WILL ALSO MONITOR THE STABILIZATION OF THE STONE COVER.

PRIOR ARRANGEMENTS HAVE BEEN MADE FOR THE WATERING OF THE NEWLY LAYED GRASS COVER.

OBLIGATION TO DATE: (5/11/84)

	CEILING	OBLIGATION	BALANCE
ON MATERIALS CONTRACT # 68B16893	\$256,688	\$182,971	\$147,829
FEMA (IAG) DN 58338241	26,858	PENDING REPORT	26,858
U.S. ARMY (IAG) DN 95338784	15,000	PENDING REPORT	15,000

NOTE: \$480K CEILING APPROVED FOR EXTRAMURAL CONTRACTORS, IAG, ERT, TAT. AN ADDITIONAL \$55K WAS ADDED FOR CONTINGENCY AND INTRAMURAL EPA COSTS FOR A TOTAL OF \$455K.

FINAL COSTS WILL BE FORWARDED AS THEY ARE FINALIZED.

SPILLEPS WEN

+

EPA LNDK

MARCH 26, 1984

TO: PAUL GECULX, OSC, EPA REGION 1

FROM: H.E. VAN CLEAVE, ACTING DIRECTOR
EMERGENCY RESPONSE DIVISION

RE: RIDGE AVENUE ASBESTOS SITE, HUDSON, N.H.
IMMEDIATE REMOVAL

THIS IS TO CONFIRM VERBAL APPROVAL OF YOUR REQUEST FOR \$455,000 IN CERCLA FUNDS (OF WHICH \$400,000 ARE FOR EXTRAURAL CLEANUP CONTRACTOR COSTS) TO INITIATE IMMEDIATE REMOVAL ACTIONS AT THE RIDGE AVENUE ASBESTOS SITE IN HUDSON, N.H. APPROVED RESPONSE ACTIONS INCLUDE INSTALLATION OF COVER MATERIAL; AIR MONITORING ON THE SITE AND IN NEARBY DWELLINGS; TEMPORARY RELOCATION OF RESIDENTS; IF NECESSARY (THROUGH FEHA); OTHER INTERAGENCY COSTS (I.E. JRG WITH ARMY COE); AND RESTORATION OF PROPERTY DAMAGED IN THE RESPONSE.

PLEASE BE AWARE THAT AN OSC IS REQUIRED TO KEEP TRACK OF THE ENTIRE BILLING FOR THIS SITE; AS EXPLAINED ON PAGE 5-1 OF THE COST CONTROL MANUAL FOR SUPERFUND REMOVALS (JUNE 14, 1982); AND PAGE 27 OF THE SUPERFUND REMOVAL GUIDANCE, REVISION 8.1 (DEC. 2, 1982).

PLEASE SUBMIT REGULAR PROGRESS POLREPS AT LEAST WEEKLY; OR MORE OFTEN IF NEEDED.

ATTACHMENTS

1. A-L CDC Health Advisory
2. A-Z U.S. Army CRREL Specs/Site Drawings
3. A-K Maps
4. A-O Analytic Data (A) EAL (B) ESA
5. A-R Safety Plan
6. A-S Work Plan
7. A Inspection Form Ridge Ave. Site
8. A-I Interagency Agreements (IAG)
9. A-B Copy of Notification Letter
10. A Reference Page
11. A-D Directory of Personnel Involved
12. A Cover Letter/OSC Report 5/30/84



Memorandum

Date September 27, 1983

From Medical Epidemiologist

Subject Asbestos Waste Sites In and Around Hudson/Nashau, New Hampshire

To Frank Lisella, Ph.D., Deputy Director
Chronic Disease Division, CEH

On September 16 and 17, 1983, I visited seven sites of asbestos waste disposal being or having been contained by the EPA Region I and the State of New Hampshire. While visiting those sites, I was asked to view an additional site of asbestos waste. The State of New Hampshire has since requested assistance from the EPA concerning this site.

The new site, hence to be called the Coolidge site, is the private property of the Coolidge family. It is a 0.9 acre lot where asbestos board, table tops, and bag house waste was deposited into a ravine. The material currently has a 3-4 inch dirt cover but numerous areas of exposed asbestos can be seen and asbestos can also be seen extending from the cliff edge when looking over the edge of the lot into the ravine. This lot has been inspected by state officials who have confirmed the presence of bulk asbestos. An unknown number of swipe samples have been performed inside the Coolidge home and have been reported as not containing asbestos. No other homes or buildings in the neighborhood have been sampled to my knowledge. No air samples have been performed.

This site constitutes a potential health hazard due to the proximity of homes in the neighborhood, the insufficient amount of cover, and the ability of some asbestos board and bag house waste to become friable with age.

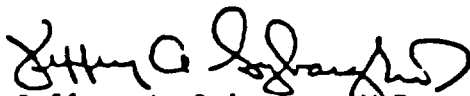
Health Considerations:

A. Because this is residential property, exposure to asbestos should be reduced as much as possible.

B. Residents should avoid contact with all asbestos contamination, particularly during cleanup action, and their houses should be secured against dust contamination. All windows and doors should be covered with plastic and sealed with tape. The outside of the house and all walkways should be decontaminated after cleanup. Swipe or vacuum samples should be collected and analyzed before and after cleanup operations. If the residential monitoring is positive for asbestos fibers, then residences should be decontaminated after action is complete.

C. Children should not be allowed to play in yard area in its current state. Likewise, adults should not engage in activities that will disrupt soil and cause resuspension of asbestos fibers.

I would recommend that this site be added to the list of asbestos waste sites of "PUBLIC HEALTH ADVISORY FOR ASBESTOS WASTE SITES, HUDSON, NEW HAMPSHIRE" (attached) and that all portions of this public health advisory apply.



Jeffrey A. Lybarger, M.D.
Special Studies Branch, CDD, CER

PUBLIC HEALTH ADVISORY FOR
ASBESTOS WASTE SITES
HUDSON, NEW HAMPSHIRE

The EPA has, through bulk sample analysis, documented contamination from chrysotile and amosite asbestos wastes at areas commonly referred to as the Coulombe, Matarazzo, Baker, Bursey, Alukonis, and Sprague sites. An additional one (the Pointer site) also has visually confirmed evidence of asbestos contamination. Although no air sampling data have been collected to confirm atmospheric concentrations of respirable asbestos, the fact that the material is friable, potentially suspendable, and currently at the surface of these sites constitutes a health risk from chronic long-term exposure to the general public, who have unhindered access to each of these sites.

The CDC concurs with EPA that these sites need attention to prevent inhalation exposure to the public. This decision is justified by the fact that removal of these exposures to a known carcinogen will result in a substantially decreased risk for disease. The alternative of no action would require costly long-term monitoring of environmental exposures, assurance that certain human activities would not occur on these properties, and the acceptance of elevated risks for asbestos-associated diseases.

During cleanup action, care should be taken to prevent exposure to both the public and worker by resuspended asbestos fibers and to prevent the contamination of buildings (both interior and exterior). In addition, since the major justification for action is the removal of risk for disease for a long time period, we recommend that EPA give serious consideration to the compatibility of its cleanup plan with appropriate end uses of these properties so that major clean-up actions will not have to be repeated in the future.



DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service
Centers for Disease Control

Memorandum

Date June 13, 1983

From Medical Epidemiologist, CDD, CEH

Subject Asbestos Waste Sites In and Around Hudson, New Hampshire

To The Record

On June 1, 1983, I visited seven sites of asbestos waste disposal in the Hudson, New Hampshire area. Representatives of EPA Region I and the State of New Hampshire were also present for the site visits. These seven sites constitute a portion of the 37 currently known sites for disposal of waste from the Johns Manville (JM) Building Materials Manufacturing Division, Nashua, New Hampshire. This facility began operations in the early 1900's, and produces asbestos-containing materials such as wall board and laboratory table tops. The JM plant dumped wastes composed of damaged and scrap fiberboard and dust from plant floors and scrubber systems (called bag house waste). The dumping was both for landfill purposes (at the request of property owners) and, apparently, for routine plant waste disposal.

In general, I concur with both the plans for action proposed by Region I and the justification for this plan as expressed in documents provided by EPA consultants. Each of these sites needs action to prevent exposure to respirable airborne asbestos fibers. Likewise, care must be taken during cleanup operations to prevent asbestos exposure to both workers and the public. Engineering consultants should consider using high barriers of fabric or other suitable material to reduce the spreading of dust to adjacent property. CDC will provide further consultation on these issues if requested. In addition, immediate action should be taken to prevent access by children to each of these sites.

Each of these sites constitutes a health hazard because of the presence of friable asbestos and the ease of access to the sites by the general public. Cleanup activities are justified based on the ALARA principle, since exposure can be reduced to background levels with no major social or economic cost. The costs, both social and monetary, of periodic atmospheric monitoring, loss of property use, and prevention of public access would have to be weighed against cleanup costs if no action were taken on these sites.

Since the ALARA principle (reduction of exposure to levels that are as low as reasonably achievable) is the major justification for action, every effort should be made to insure that the proposed cleanup will be permanent and that all future land use will be compatible with any remaining health hazard. Negotiations with landowners and the local governments regarding land use and deed restrictions have important public health implications.

Attachment 1D

Although the EPA has provided data that clearly shows the presence of asbestos fibers on the ground at each of these sites, these data do not indicate ambient or worst case atmospheric concentrations, or the particle sizes of resuspended asbestos.

These data are important to the clarification of past and current public exposure, the specification of safety measures during cleanup, and the appropriate post-stabilization land use at each site. I think it is important, therefore, to collect atmospheric exposure data during the early phases of cleanup. I want to emphasize, however, that the absence of atmospheric data should not interfere with the initiation of the cleanup activities. The air sampling should be performed at a location with low potential for public exposure (the Bursey site would be the most suitable) during the first few days of clean-up. Efforts should be made to sample when the soil is dry and to provide estimates of ambient and worst case conditions. Sampling should also be performed after wetting of the contaminated area to quantify the effects of exposure reduction by this technique.

The current cleanup actions should be seen as a component to an area-wide program of asbestos waste site identification, stabilization, and inspection. The governmental agency responsible for periodic post-action inspection should be identified and be charged with designing an inspection plan that will provide periodic evaluation and repair of all 37 asbestos waste sites.

Specific suggestions regarding environmental monitoring and public health protection during cleanup operations are included in the following discussions of each specific site. The question of whether or not to identify exposed individuals for a health effects registry will have to be based on the recommended air sampling data. I suggest that EPA Region I develop with its air monitoring staff the appropriate contractual relationships with research groups experienced in the collection and analysis of air monitoring data for asbestos. Richard Lemen of NIOSH has agreed to consult on appropriate monitoring techniques (FTS 684-8302).

Since clarification of the question of asbestos contamination in homes will require analysis of interior samples, (collected by either swipe or vacuum cleaner methods) these samples should be collected as soon as possible in order to have data in time to make decontamination decisions. The Coulombe residence would be the most appropriate for these measurements. Post-action decontamination of residences should be based on the pre-action interior data and on the resuspension monitoring. The time lag between collection and analysis of residential samples will be too long to base decontamination decisions upon interior monitoring after the cleanup has been completed. George Carson of NIOSH (FTS 758-3491) has agreed to provide consultation on interior monitoring.

1. Coulombe Site - A private residence where asbestos sheet materials and other waste were used to fill a ravine. There are currently eight residents, one of whom is a young child. Asbestos containing material was observed in the yard in front of the dwelling. The material was primarily laboratory bench tops, cutoff asbestos sheets, and bag house waste. Mounds of sand fill were also present on the property, and there is evidence of attempts at covering the asbestos waste.

Health Considerations:

- A. Because this is residential property, exposure to asbestos should be reduced as much as possible.
 - B. Residents should avoid contact with all asbestos contamination, particularly during cleanup action, and their house should be secured against dust contamination. All windows and doors should be covered with plastic and sealed with tape. The outside of the house and all walkways should be decontaminated after cleanup. Swipe or vacuum samples should be collected and analyzed before cleanup operations are begun. If the preliminary residential monitoring is positive for asbestos fibers, then the residence should be decontaminated after action is complete.
 - C. Children should not be allowed to play in yard area in its current state. Likewise, adults should not engage in activities that will disrupt soil and cause resuspension of asbestos fibers.
2. Matarazzo Site - A vacant lot adjoining a state highway and next to a stream. This land has been covered with approximately 6 inches of sand. Pieces of asbestos sheets are evident, particularly on the slope leading from the property to the stream. Bag house waste is not prevalent, but pellets of compressed bag house waste (called abollo) were seen frequently. Clear evidence of tire tracks from motorcycles were noted in the ravine slope.

Health Considerations:

- A. Erosion control is important at this site - for the level area as well as the slope. Grading should be performed only when soil is wet to avoid raising dust contaminated with asbestos.
 - B. Atmospheric monitoring data should be used to determine the need for barriers to reduce the amount of windblown material reaching the highway.
 - C. Access by children and motorcyclists should be prevented immediately.
3. Pointer Site - This site does not appear on the original list prepared by EPA Region I, but was recently brought to their attention by the State of New Hampshire. It is a vacant lot created out of marshland by filling with asbestos products in a low density housing area. An examination of the surface revealed both bag house waste and abollo pellets. There are single family dwellings on either side of this lot.

Health Considerations:

- A. The question of suitability for residential use is a difficult one to answer. Soil coring in the adjacent property (with residential structures) should be carried out to determine whether these lots also were created from asbestos fill, and if so, how effective the lawn stabilization has been. Any indication of severe erosion problems suggests the need for a non-residential use. Final decision as to appropriate end use should be based on air monitoring data.
 - B. Air monitoring data from the Bursey site should be used to determine the amount of exposure to adjacent residents at this site which needs to be minimized during cleanup action.
 - C. There is a need for immediate prevention of access by neighborhood children.
4. Bursey Site - This is the largest disposal site I visited, comprising an area of approximately 4 acres of filled wetland, with impounded water and a stream at the northwest and northeast borders. The southwest portion of the site is composed of broken asbestos sheets and sand, and the northeast quarter of this property is covered with mounds of bag house waste, abollo, and pieces of asbestos sheets. The closest populated area is the Meadows Drive-In restaurant, approximately 1/5 mile from the edge of the site. There is also a tourist attraction (Benson's Wild Animal Farm) approximately 1/2 mile to the northeast; and to the southeast, a residential area behind what appears to be an earthen berm and a border of white pine. Each of these populated areas is screened from the asbestos wastes by vegetation, and will probably not require special protective measures.

There is evidence of motorcycle activity in the area of the mounds of bag house waste. There is also evidence of resuspended asbestos particles on the underside of plants leaves in this area.

Health Considerations:

- A. The contamination of this site is extensive and poses problems of erosion and potential flooding by adjacent wetlands. Because of the extent of bag house waste deposition, this site should not be used for residential property. Care should be taken to plan final use of land that is compatible with limited public access.
- B. This area is the best for the recommended air sampling to determine the resuspendibility of bag house waste and other asbestos marterial. Protection of the general public during cleanup action will depend on the outcome of this air sampling program.
- C. This site needs to be posted as a public health danger, and public access to the area with concentrated bag house waste should be prohibited immediately. The size of this site may preclude fencing, but great care should be taken to prevent public access during cleanup action.

5. Baker Site - An operating service station and garage located on the southwest side of the Alukonis site, and bordering a state highway. The land adjacent to the highway has bag house waste and asbestos sheets, and is the repository for both junked and used cars. There is an impoundment and a ditch with water at the back of the site that delineates the boundary of asbestos contamination. EPA records indicate that there was once a large quantity of bag house waste at the back of the garage and that gas station patrons drove through this area. These records also indicate that asbestos fiberboard is used as flooring in the office of the garage.

Health Considerations:

- A. Air sampling should be performed at this site before actual remedial action to document worker exposure and to determine whether this site is a public health hazard that requires immediate restriction of public access. Air monitoring should also be performed during a trial grading of the back of the lot to determine the need for evacuation of adjacent property, and the need for re-routing of highway traffic.
- B. There should be no access to the garage and gas station during cleanup action. As many junked cars and debris as possible should be permanently removed from the site and disposed of in an appropriate landfill. Swipe and vacuum samples should be taken from vehicles prior to remedial action. If samples are positive, all usable vehicles should be decontaminated before being moved from the site. All buildings should have doors and windows covered with plastic and sealed with tape prior to cleanup.
- C. Swipe and/or vacuum cleaner samples should be collected and analyzed before the start of cleanup activities to determine the need for interior decontamination. Clearly, it would be desirable to do this after cleanup action, but time delay for analytical work would delay the use of this facility. The exterior of all buildings should be decontaminated after cleanup action. Swipe samples should also be taken from buildings on adjacent property both before and after cleanup action to help determine the need for decontamination. The final decisions regarding decontamination of building interiors should be based on swipe and vacuum samples and air monitoring data.

6. Alukonis Site - This is a small site adjacent to a state highway, between the Baker site and a real estate office, and across the street from occupied dwellings. The portion of this lot that borders the highway has evidence of bag house waste and asbestos sheets. This lot has been partially covered by sand. It appears that this portion of the lot is used for parking and as a turn-around area for vehicles. There is a ditch with water at the back of the site that serves as the boundary for asbestos contamination.

Health Considerations:

- A. Public access (particularly to vehicles) to this site should be prevented immediately.
 - B. This site should be cleaned-up in conjunction with the adjacent Baker site. There should be no access to adjacent businesses during cleanup action, and windows and doors should be sealed with plastic sheeting. Air monitoring should be performed during grading of the back portion of the Baker site to determine whether access to the property across the highway should be prohibited and whether access to the highway should be limited as well.
7. Sprague Site - An area of filled wetlands at the end of a moderate density residential street, with occupied residences adjacent to and across the street from the property. EPA reports indicate fill was bag house waste and asbestos sheets. The majority of the lot has been covered with sand recently. Bag house waste is evident at the edges of the fill, adjacent to the flooded stream floodplain. Children were playing at this site when we arrived.

Health Considerations:

- A. This property may not be appropriate for residential use due to its potential for flooding, and because of the underlying asbestos wastes. Air monitoring data from other sites should be used to clarify this point. These issues should be considered when determining appropriate final use.
- B. Access to this site should be prevented immediately.
- C. Air monitoring data from other sites should be used to determine the amount of exposure to residents at adjacent properties which should be minimized during cleanup action.
- D. Since children have played at this site, air monitoring data should be used to determine appropriateness of a health effects registry.



James Ruttenber, M.D., Ph.D.



DEPARTMENT OF THE ARMY
COLD REGIONS RESEARCH AND ENGINEERING LABORATORY, CORPS OF ENGINEERS
HANOVER, NEW HAMPSHIRE 03755

16 January 1984

Mr. Paul Groulx
U.S. Environmental Protection Agency
Region I
60 Westview Street
Lexington, MA 02173

Dear Paul:

Here are the design specifications for covering steep slopes on the waste asbestos deposits in Hudson, NH.

Also, the detailed calculations on the amount of material required to cover the deposit on the Coolidge/Town of Hudson site.

I am also enclosing a Memo documenting Alex Iskandar's and my site visit with you last November; a management scheme for the grass cover on these sites; and a detailed scope of our proposed work.

DISPOSITION FORM

For use of this form, see AR 340-15, the proponent agency is TAGO.

REFERENCE OR OFFICE SYMBOL

CRREL-EA

SUBJECT

Inspection Visit of Waste Asbestos Sites in Hudson, NH
(EPA Superfund Restoration)

TO MFR FROM Richard McGaw DATE 3 January 1984 CMT 1

1. Reference letter of 26 October 1983 from EPA-Region I (Request for Assistance) and my Telephone Conversation Records of 26 October 1983 and 19 December 1983.
2. On 8 November 1983 Alex Iskandar and I traveled to Hudson, NH, and met Mr. Paul Groulx (EPA-Region I, Boston) and Mr. Mark Hall (Roy Weston, Inc - Spill Prevention and Emergency Response Division) for the purpose of inspecting an asbestos waste disposal site on the Coolidge property. We also viewed the restoration work accomplished last summer by the EPA to cover eight former disposal sites in Hudson and Nashua, NH, according to specifications recommended by us.
3. The new site (Coolidge/Town of Hudson) is an asbestos deposit about 1/4 acre in area and about 20 ft in depth. It apparently was placed some 30 years ago and has been compacted by natural settlement. Small trees and shrubs have taken root on the steep north-, east-, and south- facing slopes. The upper surface, which slopes gently to the east, has recently been smoothed somewhat and grass has been planted by Mrs. Coolidge to provide a private recreational area. The owner clearly did not recognize the potential health hazard in disturbing this material.
4. Because portions of the Coolidge site are much steeper than any we have previously considered, adjustments to our former recommendations for covering the asbestos were discussed with Mr. Groulx at the site. We also visited a nearby sand and gravel pit to determine what sort of covering materials were available locally.
5. Recommendations for covering the Coolidge/Town of Hudson waste asbestos site will be given in a separate letter to EPA-Region I.
6. With Mr. Groulx we also inspected the two Virginia Road sites; the Alukonis, Bursey, Baker, and Matarazzo sites; the Coulomb and Pointer sites; and the Sprague site in Nashua, NH, across the Merrimack River. Except for the Virginia Road sites, all of these waste asbestos deposits had been covered by the EPA during the period July-October 1983 under the emergency response provisions.
7. The Virginia Road sites had been covered in the fall of 1982 by Johns-Manville using 15 in. of soil cover and had been planted with grass. A chain link fence erected along one side of Virginia Road restricted access by children to the largest portion of the deposit. When we saw these sites they appeared to be in stable condition. We were told that some minor erosional repair had been required following the previous winter. Otherwise, the surface grading seemed to have been done well, and the grass was in good condition. The restoration work had clearly enhanced both the appearance and the health safety of the neighborhood.
8. The Virginia Road sites should be inspected yearly to determine whether asbestos particles are being brought to the surface through frost action, inasmuch as 15 in. is less than the recommended permanent cover. The long-term adequacy of the restoration will depend on the effectiveness of the underdrains which were installed at the time of the restoration.

CRREL-EA

3 January 1984

SUBJECT: Inspection Visit of Waste Asbestos Sites in Hudson, NH
(EPA Superfund Restoration)

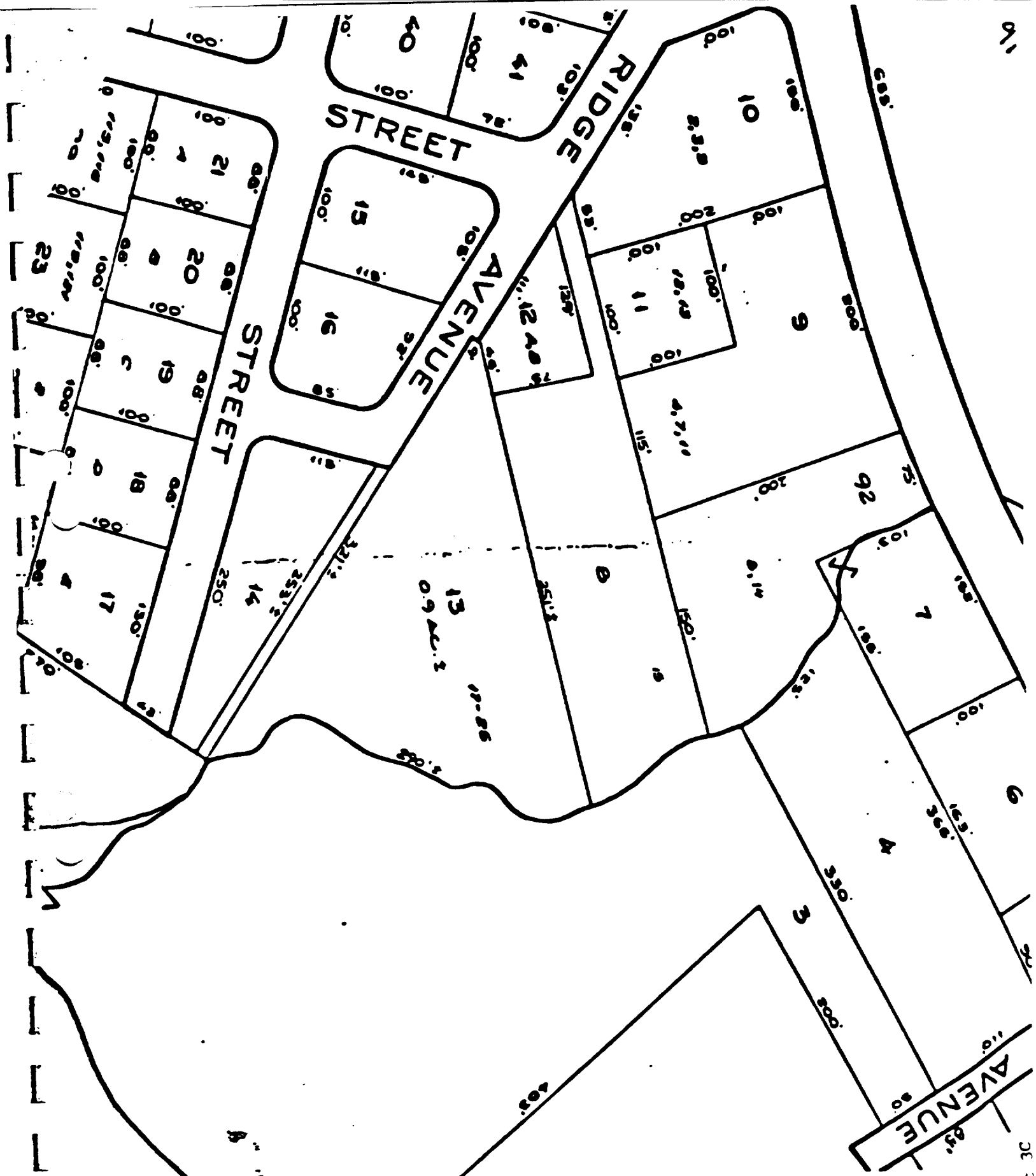
9. The restoration work on the other disposal sites had been done by the EPA last summer. The Sprague site (Nashua) needed some reseeded where the grass seed had been washed away before it could germinate; however, there seemed to be no adverse erosion at the site. Also, the Matarazzo site required some slight corrective work at the rock apron leading down the steepest slope to the brook. With these exceptions, the covering of the waste asbestos had been done in an exemplary fashion, and much of the grass had developed some growth prior to the end of the growing season.

10. In the spring the distribution of grass growth should be monitored closely, so that reseeded can be done early in those areas showing less than adequate coverage with grass. Alex Iskandar has also pointed out that mowing should be done two or three times each growing season to stimulate growth.

R. McGaw

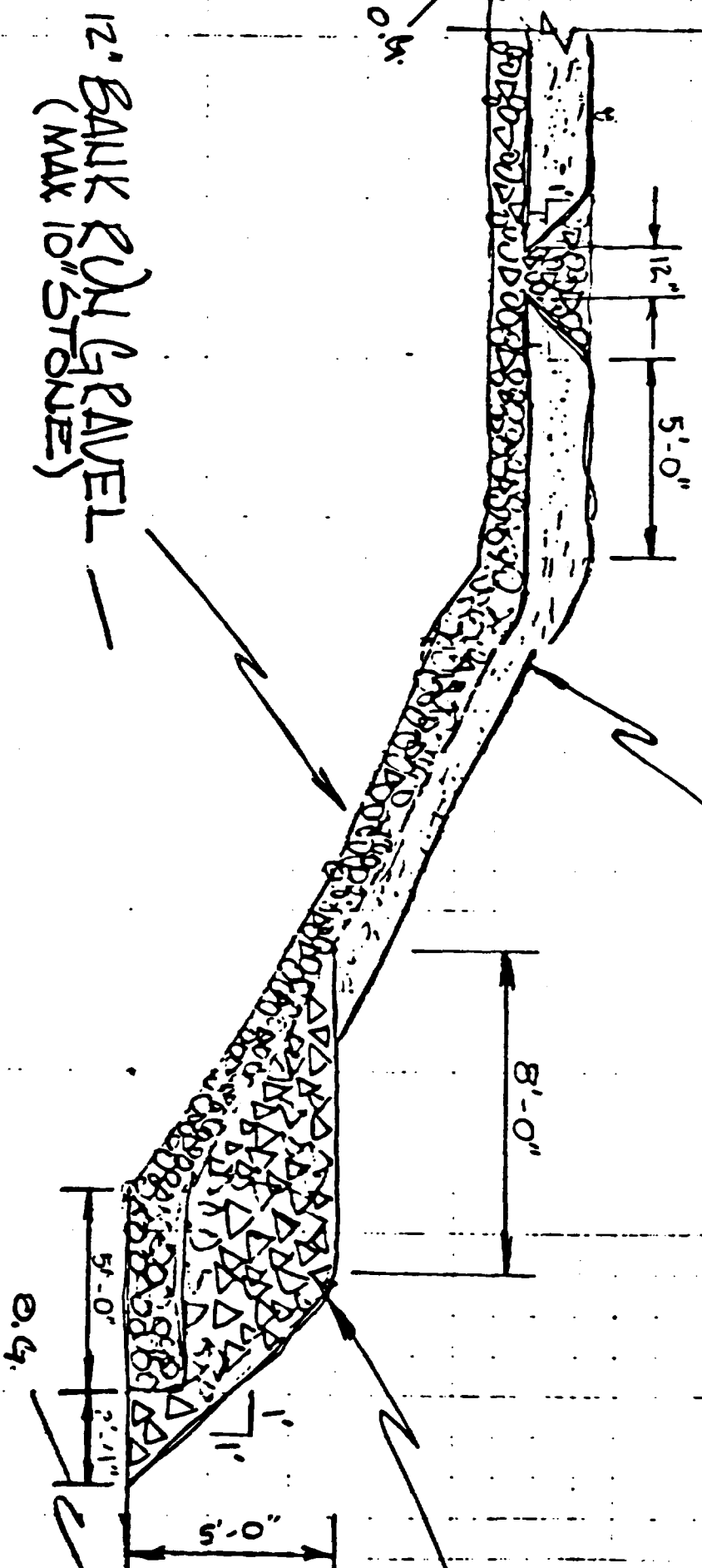
RICHARD W. MCGAW
Research Civil Engineer
Applied Research Branch

cf: Dr. I. Iskandar
Chief, P&P (One-stop service)
Chief, ESB



PROPERTY MAP
TOWN OF HUDSON
HILLSBOROUGH COUNTY, NEW HAMPSHIRE
PREPARED BY
JAMES W. SEWALL COMPANY OLD TOWN, MAINE

6" CRUSHED RUN STONE (MAX 5"



12" BANK RUN GRAVEL
(MAX 10" STONE)

A-A

0+30 0+35 0+40 0+45 0+50

Management of Asbestos Disposal Sites After the First Year of Soil Cover

1. In mid-April 84, inspect the germination of the grass seed visually.
2. Spot reseed the area where seeds did not germinate (no color change observed).
3. Soil samples should be taken and tested for N, P and K, and recommendations on fertilizer application should be followed. At minimum, if no tests are done or will be done, 40 pounds of N fertilizer should be applied per 1,000 sq ft.
4. If hydroseeder will be used to reseed a large area, a 100-150 lbs of solids per 100 gallons of water is the maximum mixture. Solids include fertilizer, seeds and mulch materials.
5. Grasses to be used are Perennial Ryegrass, Tall Fescue, Kentucky Bluegrass, Reed Canarygrass or Birdfoot Trefoil. The following are the recommended combinations and amounts of each:

a. Switchgrass	5 (PLS)*
Bluestem (big or little)	5 (PLS)*
Perennial ryegrass	5
Birdfoot trefoil**	<u>5</u>

Total 20 lb/AC

b. Tall fescue	20
Flat pea	<u>30</u>

Total 50 lb/AC

c. Deer tongue	10 (PLS)*
Birdfoot trefoil	8
Perennial ryegrass	<u>3</u>

Total 21 lb/AC

d. Deer tongue	10
Crownvetch**	15
Perennial ryegrass	<u>3</u>

Total 28 lb/AC

$$* \text{ PLS pure live seed} = \frac{\% \text{ germination} \times \% \text{ purity}}{100}$$

$$\text{Actual lbs of commercial seed to be used} = \frac{100 \times \text{lbs of 100\% PLS}}{\% \text{ PLS of commercial seed lot}}$$

** Inoculate legume seeds; use four times the recommended amounts when hydroseeding.

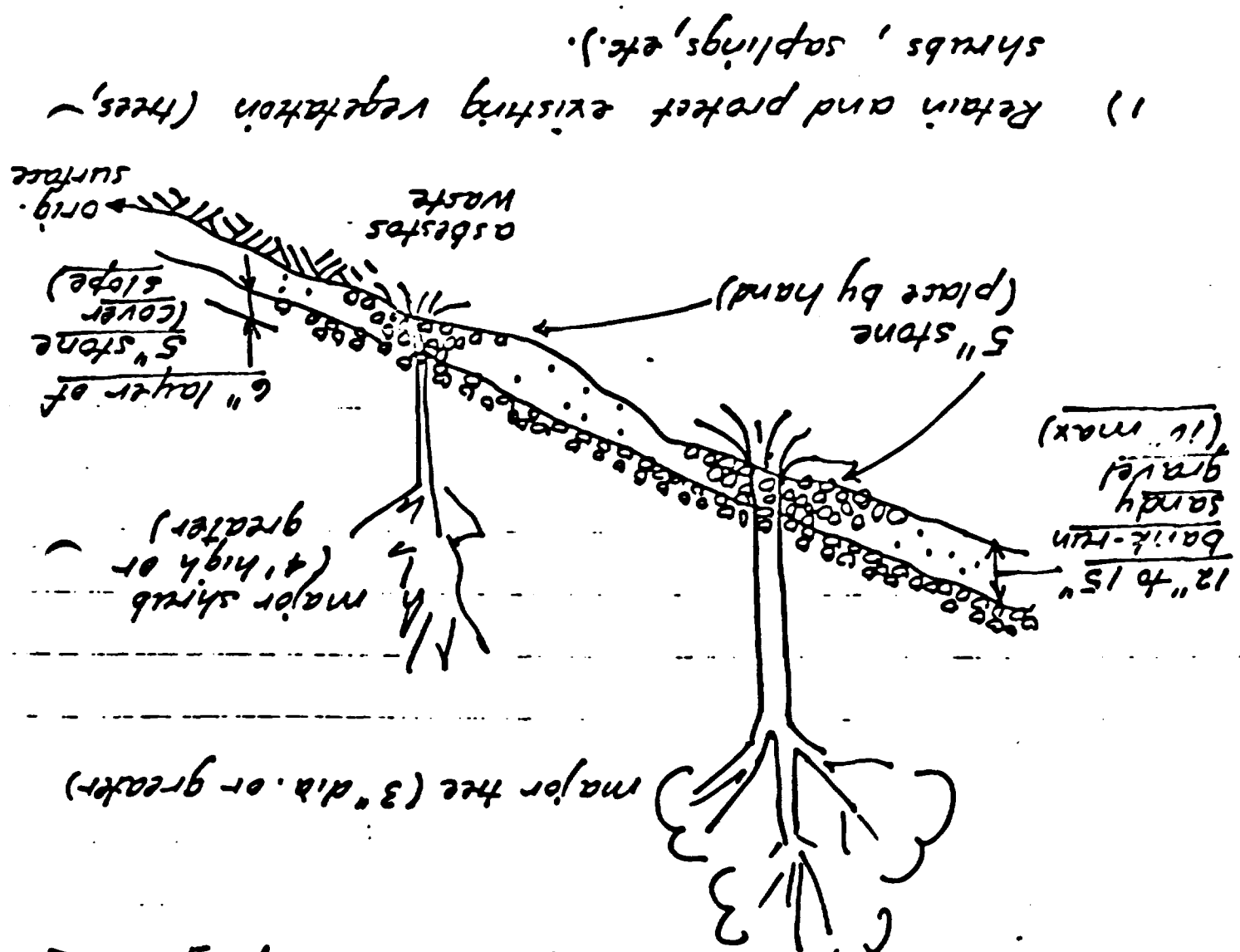
6. Recommended Variety

Tall fescue (Kentucky 31)
Birdsfoot trefoil (Empire)
Switchgrass (Blackwell)
Perennial ryegrass (Norlea, Manhattan)
Flatpea (Lathco)

January 1984
I. Iskandar
US ARMY CRREL

2m
4/12/84

SCOPES (new specification) with Existing Vegetation



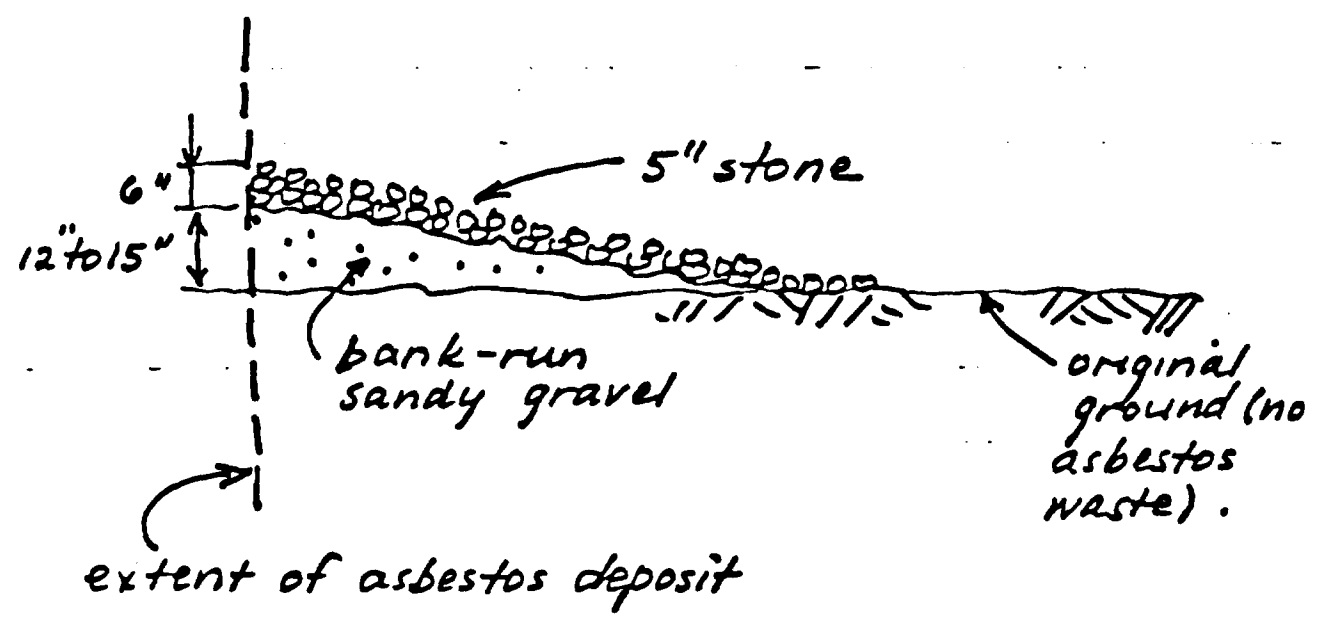
1) Retain and protect existing vegetation (trees, shrubs, saplings, etc.).

2) Place 5" stone around major trees and shrubs (to 12" depth near trunk) to provide aeration of root zone; most of stone will be upslope of trunk. Place to a diameter about equal to 1/2 the extent of the crown.

RM
1/12/84

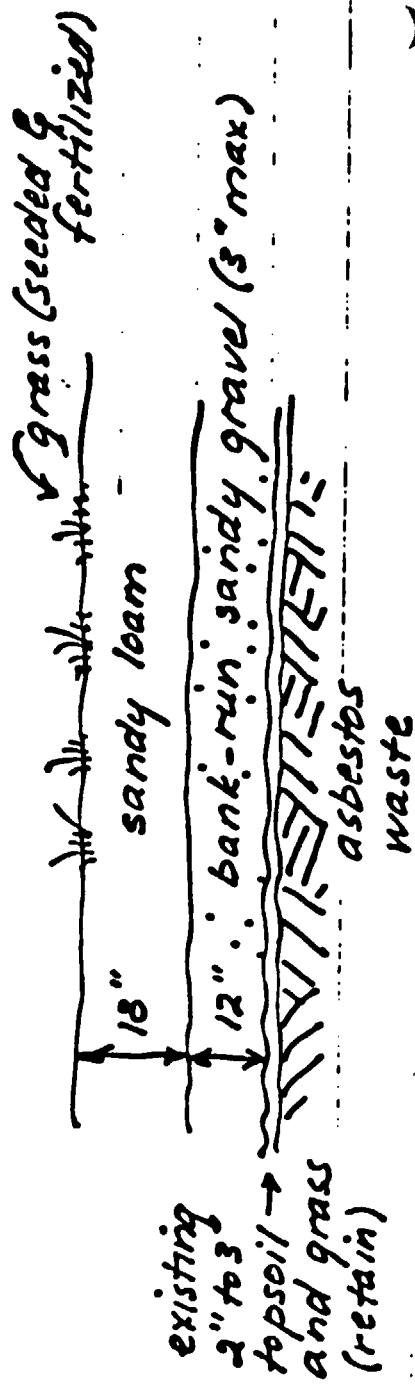
EDGE AREA (new specification):

Adjacent to Slope areas with existing vegetation.



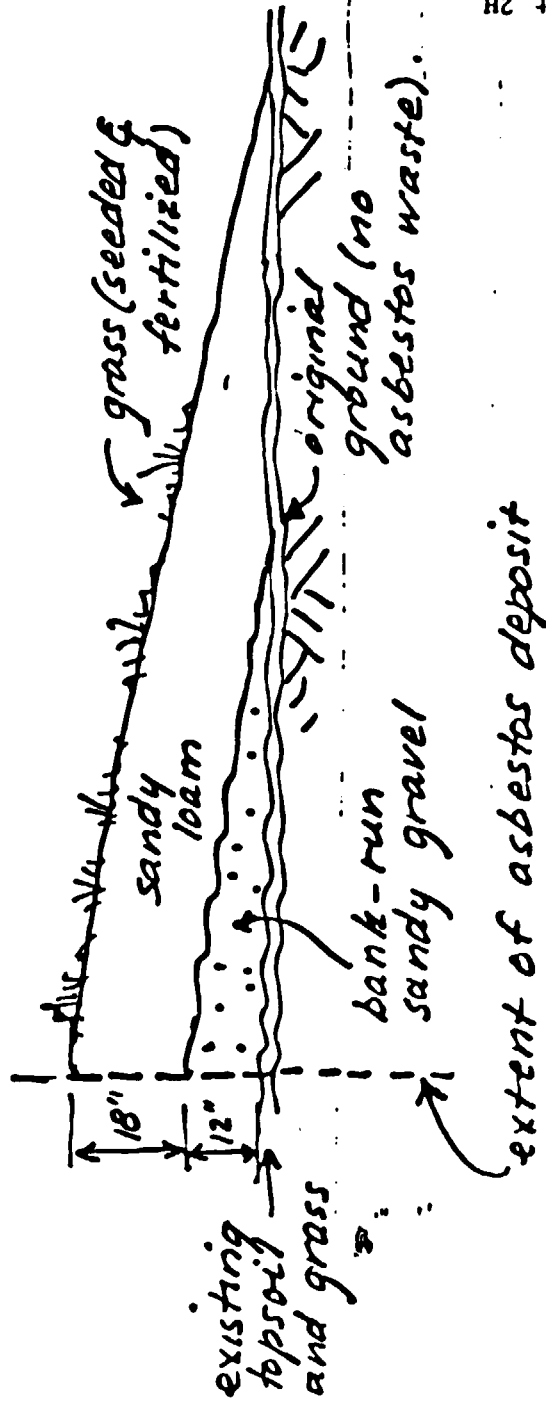
Rm
1/12/84

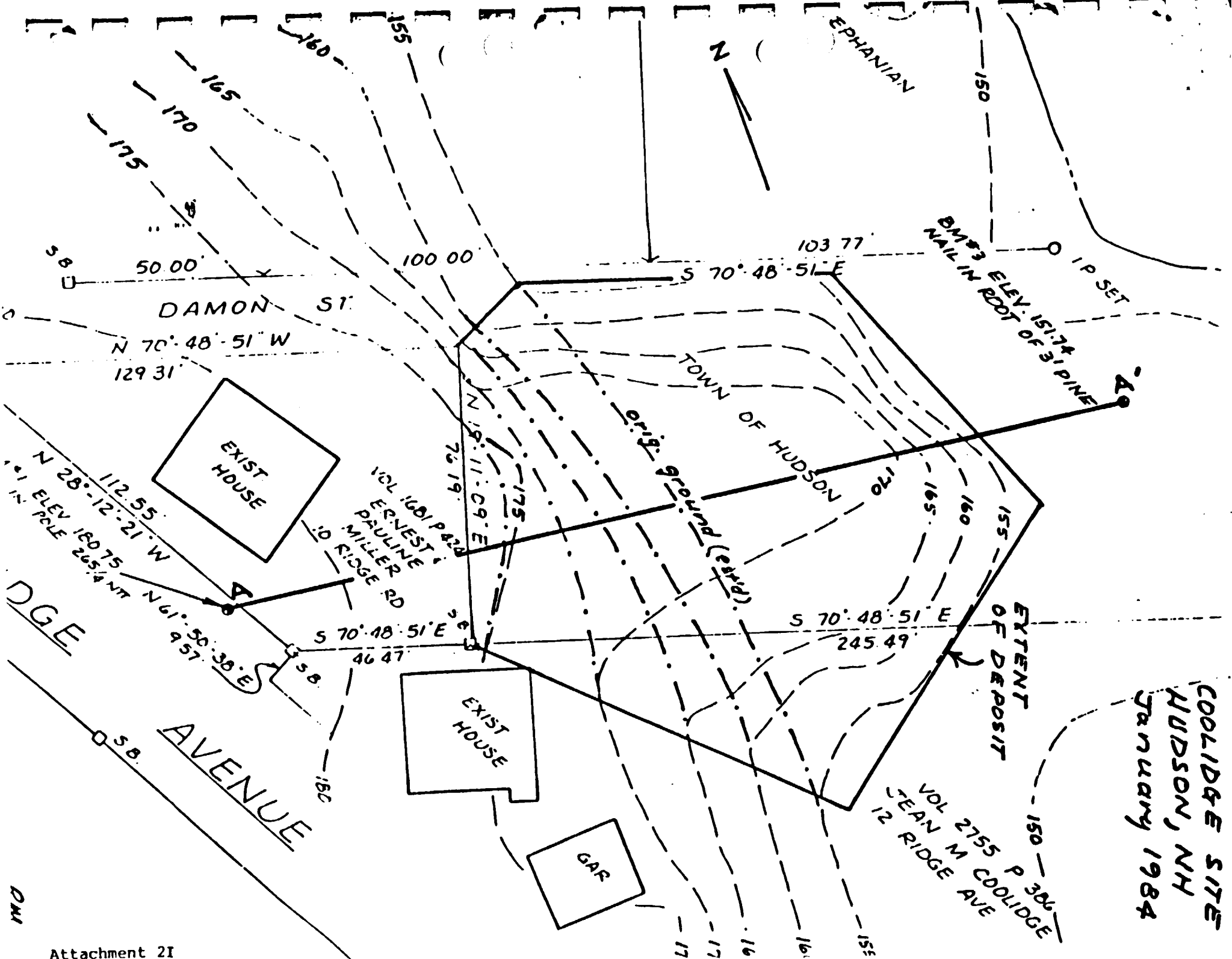
PLATEAU AREA (standard specification):



EDGE AREA (standard specification):

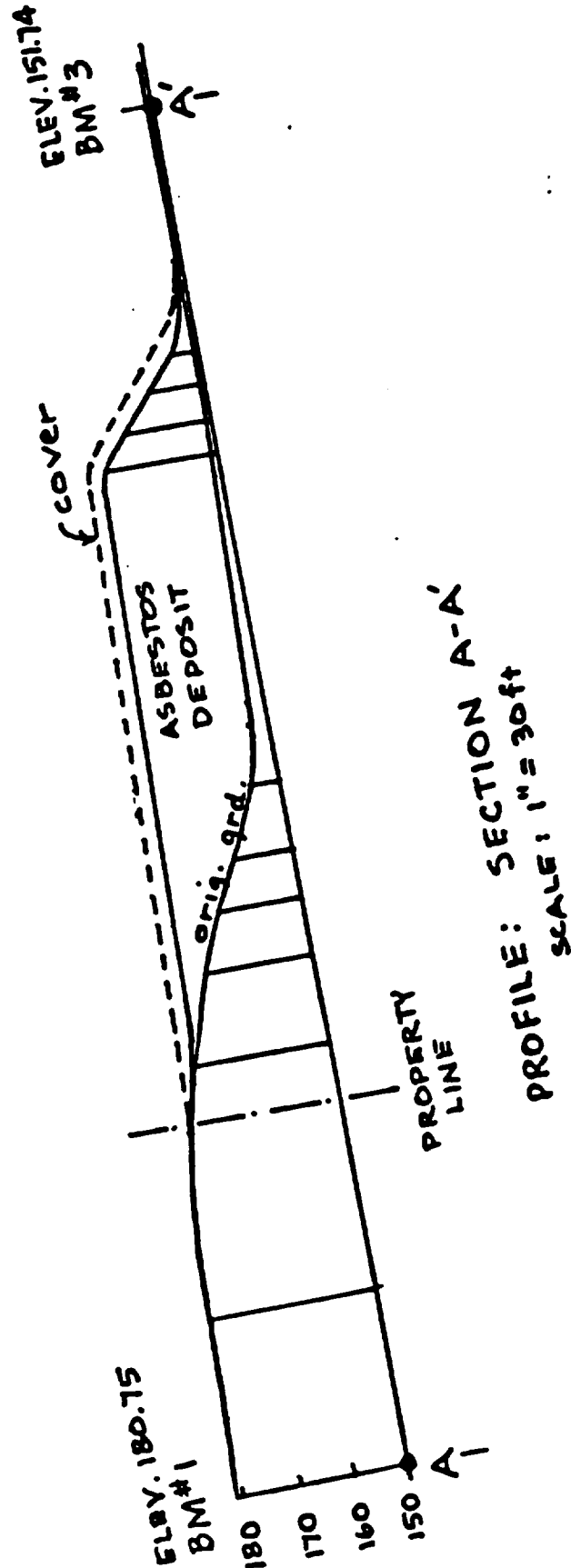
Adjacent to Plateau (flat) areas:

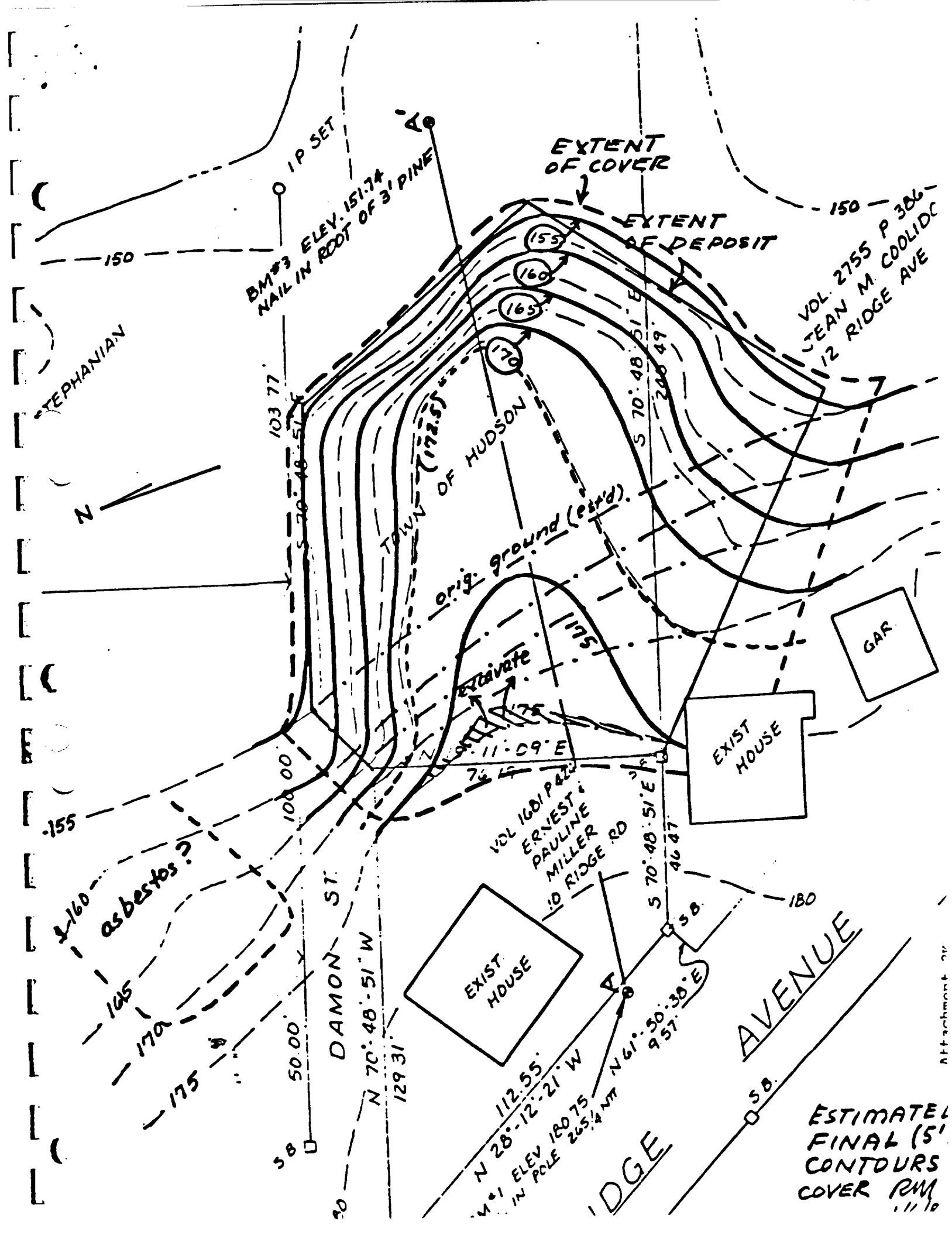






DEPARTMENT OF THE ARMY
COLD REGIONS RESEARCH AND ENGINEERING LABORATORY, CORPS OF ENGINEERS
HANOVER, NEW HAMPSHIRE 03755





THICKNESS OF
ASBESTOS
DEPOSIT (5'
CONTOURS)

Attachment 71.

AVENUE

EXIST HOUSE

EXIST HOUSE

GAR

EXTENT
OF DEPOSIT
VOL. 2755 P 326
CLEAN M. COOLIDGE
12 RIDGE AVE

112.55
N 28° 12' 21" W
ELEV. 180.75
POLE 26 1/4" DIA

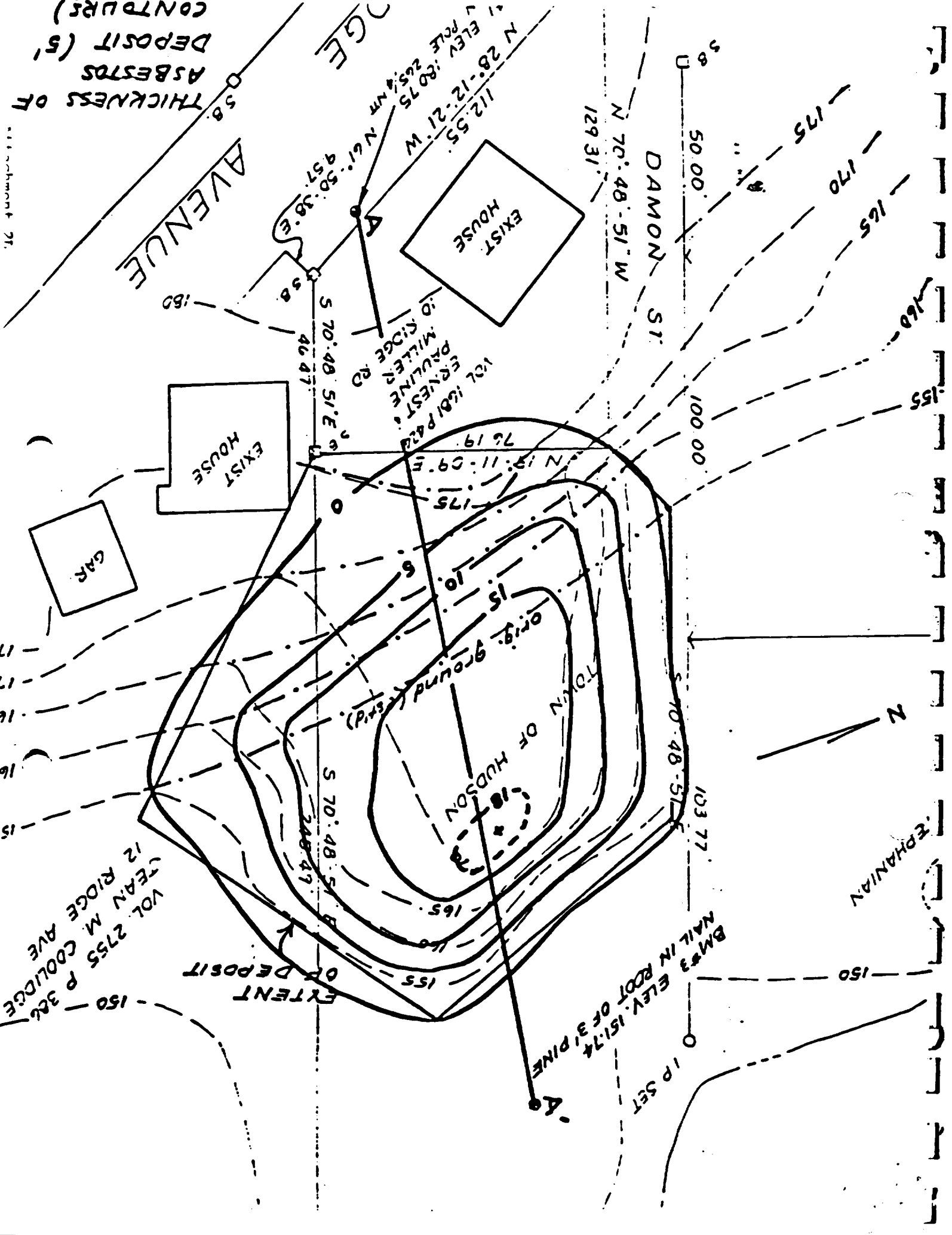
101.1801 P 428
ERNEST
PAULINE
MILLER
10 RIDGE RD

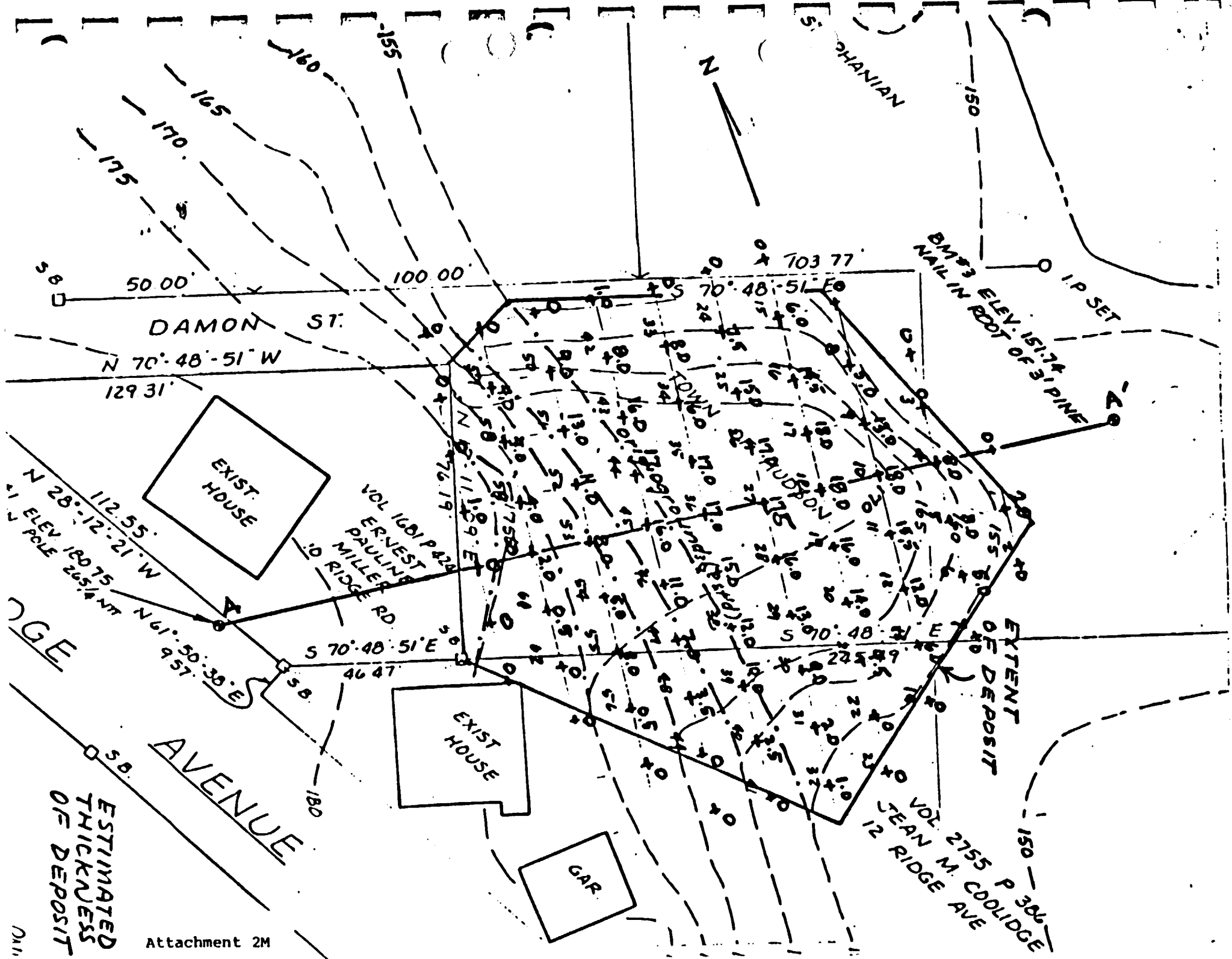
TOWN OF HUDSON
orig. ground (4th P.)

DAMON ST

ROMANIAN

BM #3 ELEV. 151.74
NAIL IN ROOT OF 3' PINE
1 P SET





DISPOSITION FORM

For use of this form, see AR 340-15. The proponent agency is TAGO.

McGaw

REFERENCE OR OFFICE SYMBOL

SUBJECT

CRREL-EA

Reclaiming of Asbestos - Waste Sites in Hudson, NH (EPA Superfund Restoration).

TO

FROM

D. McGaw

DATE

13 Sep 83

CMT 1

MFR

MCGAW/mh

1. References: My Telephone Conversation Records of 27 May 83, 2 June 83, and 31 Aug 83, on same subject.

2. On 25 and 26 Aug 83, Dr. I. Iskandar and I traveled to Concord, NH, to give expert testimony for the U.S. Environmental Protection Agency (EPA) in Federal District Court, upon the request of Sheila Jones (Attorney for Dept. of Justice, Wash., DC) and Philip Boxell (Attorney for EPA Regional Office, Boston, MA).

3. The case involved a request by the United States for a Temporary Injunction under the Superfund regulations to gain access to six Johns-Manville asbestos-disposal sites in order to provide emergency cover of soil and grass. Two property owners (A. Mantarazzo and J. Bursey) were denying the U.S. access to the sites on the grounds that they not be held financially liable for the restoration (burial) of the toxic material.

4. Paul Heffernon (EPA) testified on the physical characteristics of the disposal sites.

5. Dr. Robert Sawyer, M.D., testified on the medical hazards of the asbestos waste (scraps, pellets, and fibers).

6. I testified on the depth of cover required to keep the asbestos material from being returned to the surface through the yearly process of freezing and thawing. The principle is simple: to keep the frost front from entering the hazardous layer by providing a depth of moist soil equal to the probable depth of freezing in that location. Using standard Corps of Engineers design procedures based on freezing indices, I calculated that the maximum depth of frost would be about 36 in. at Hudson, NH (fairly near the coast) for possibly one year in ten. I recommended an expedient depth of cover of 30 in. of sandy gravel or its equivalent as being sufficient to provide 50 to 100 years of protection.

7. Alex Iskandar testified on the depth of organic topsoil needed to sustain a permanent grass cover over the asbestos material, which is very alkaline (pH of 11 or 12). He recommended at least 18 in. of topsoil, because it had been determined that the roots will extend to that depth. The remaining 12 in. of cover would be a sandy gravel, coarse enough to be of low frost-susceptibility and fine enough to contain sufficient moisture to support the vegetation at the surface.

8. The decision of the court is attached. As Mr. Boxell states, the decision granted the U.S. everything the attorneys were asking for.

R. McGaw

RICHARD W. MCGAW
Research Civil Engineer
Applied Research Branch

CF: TD

Chief, P&P (One-stop service)

Chief, EED

Chief, ARB

Dr. I. Iskandar + Dr. R. Berry

Attachment 22

TELEPHONE OR VERBAL CONVERSATION RECORD

For use of this form, see AR 340-15; the proponent agency is The Adjutant General's Office.

DATE

2 June 1983

SUBJECT OF CONVERSATION

Reclaiming of asbestos waste sites in NH

INCOMING CALL

PERSON CALLING

ADDRESS

PHONE NUMBER AND EXTENSION

PERSON CALLED

OFFICE

PHONE NUMBER AND EXTENSION

OUTGOING CALL

PERSON CALLING

R. McGaw A. Iskandar
D. Gaskin

OFFICE

PHONE NUMBER AND EXTENSION

PERSON CALLED

Carl Eidam

ADDRESS

PA Office, Lexington, MA

PHONE NUMBER AND EXTENSION

FIS 223-7265

617-861-6700

SUMMARY OF CONVERSATION:

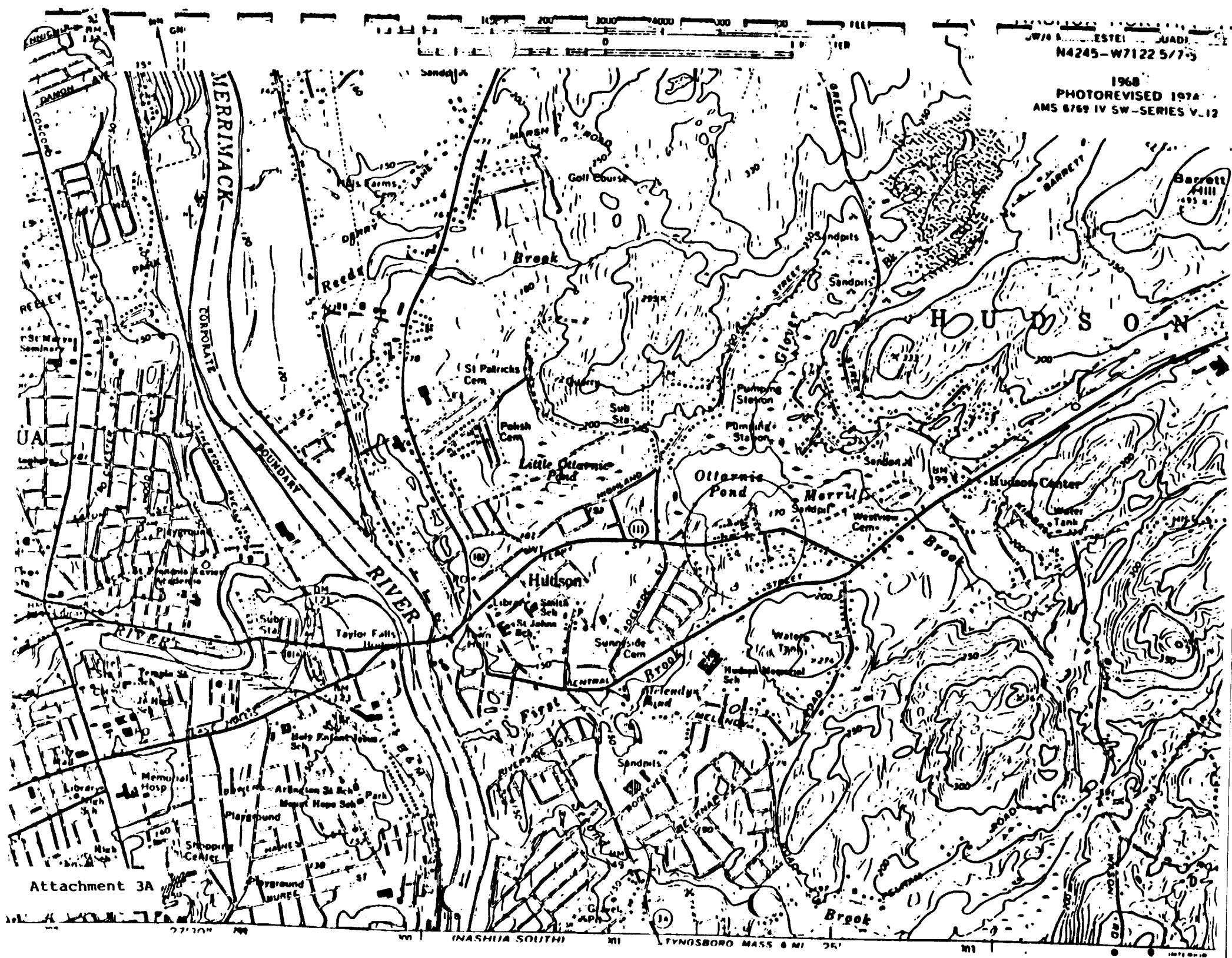
1. A conference call was made to discuss what the required minimum cover on the asbestos waste sites at Hudson, NH, and at Nashua, NH, should be.
2. Iskandar and Gaskin were convinced that 12 inches of topsoil is necessary for long-term survival of grass cover.
3. McGaw recommended a minimum of 18 inches of sandy gravel beneath the topsoil, to limit frost depth and if possible to contain the frost front within the cover materials.
4. Overall minimum cover is therefore 30 inches (2.5 ft) in frost-prone areas. ✓ Carl will incorporate this into the final funding request.
5. We were told that our expertise was greatly appreciated, and was instrumental in protecting the public welfare in these cases. It is likely (we were told) that our help will save many dollars and will result in a much more successful solution to the toxic hazard situation.
6. When work begins on the sites we will be contacted again.

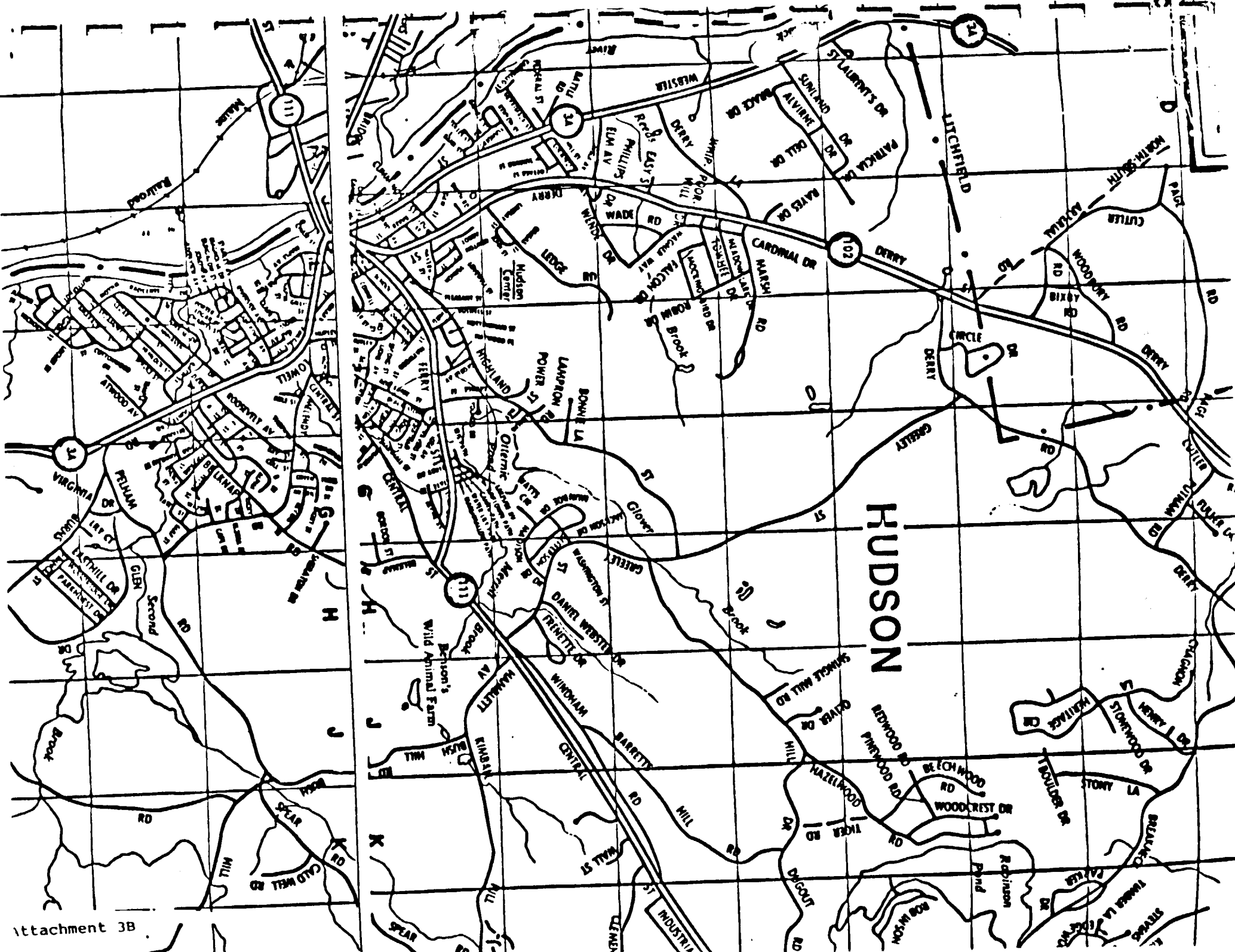
R. McGaw

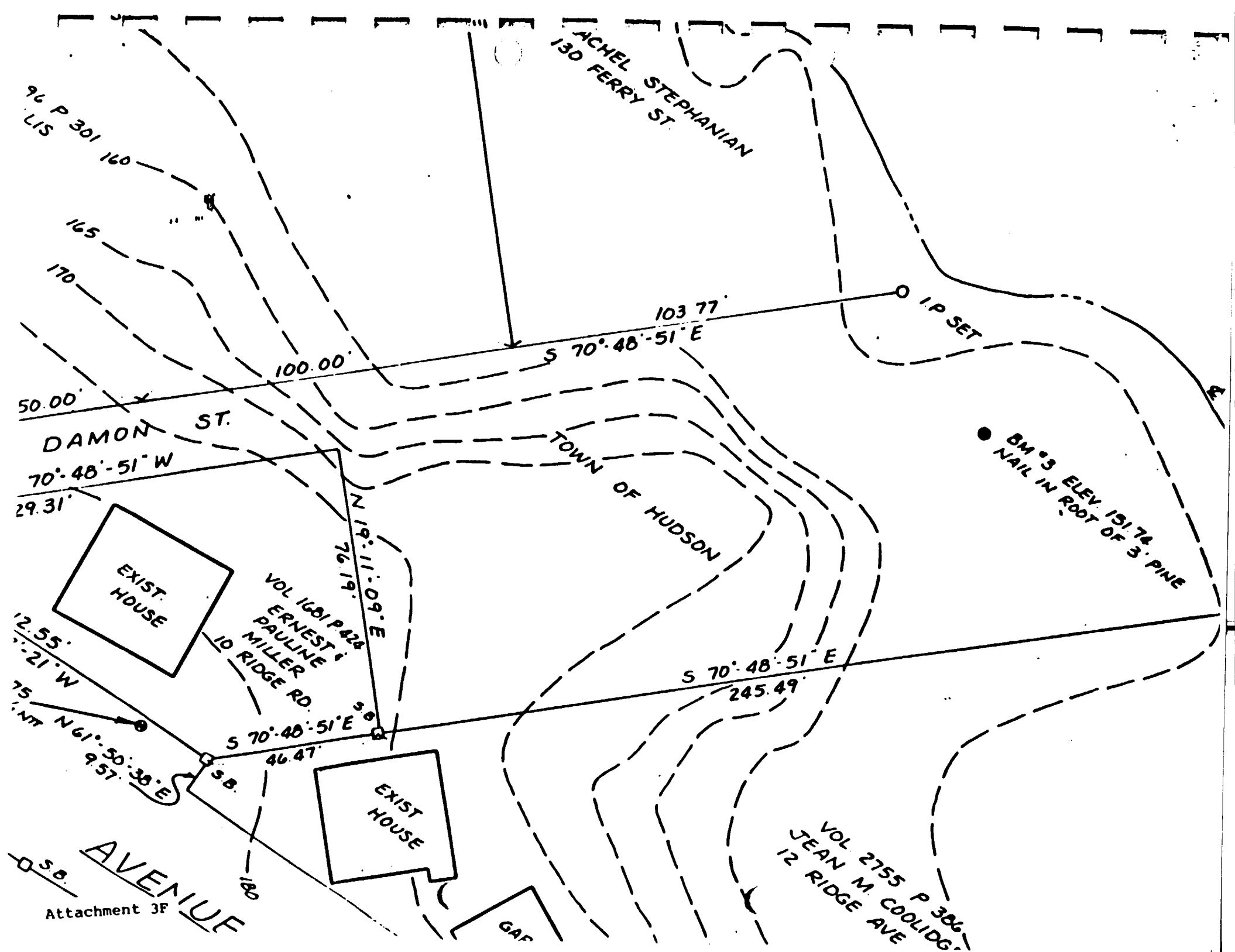
RICHARD W. MCGAW
Research Civil Engineer
Applied Research Branch

cc: D. Gaskin
A. Iskandar
Chief, ARB
TD
CD
Chief, P&P

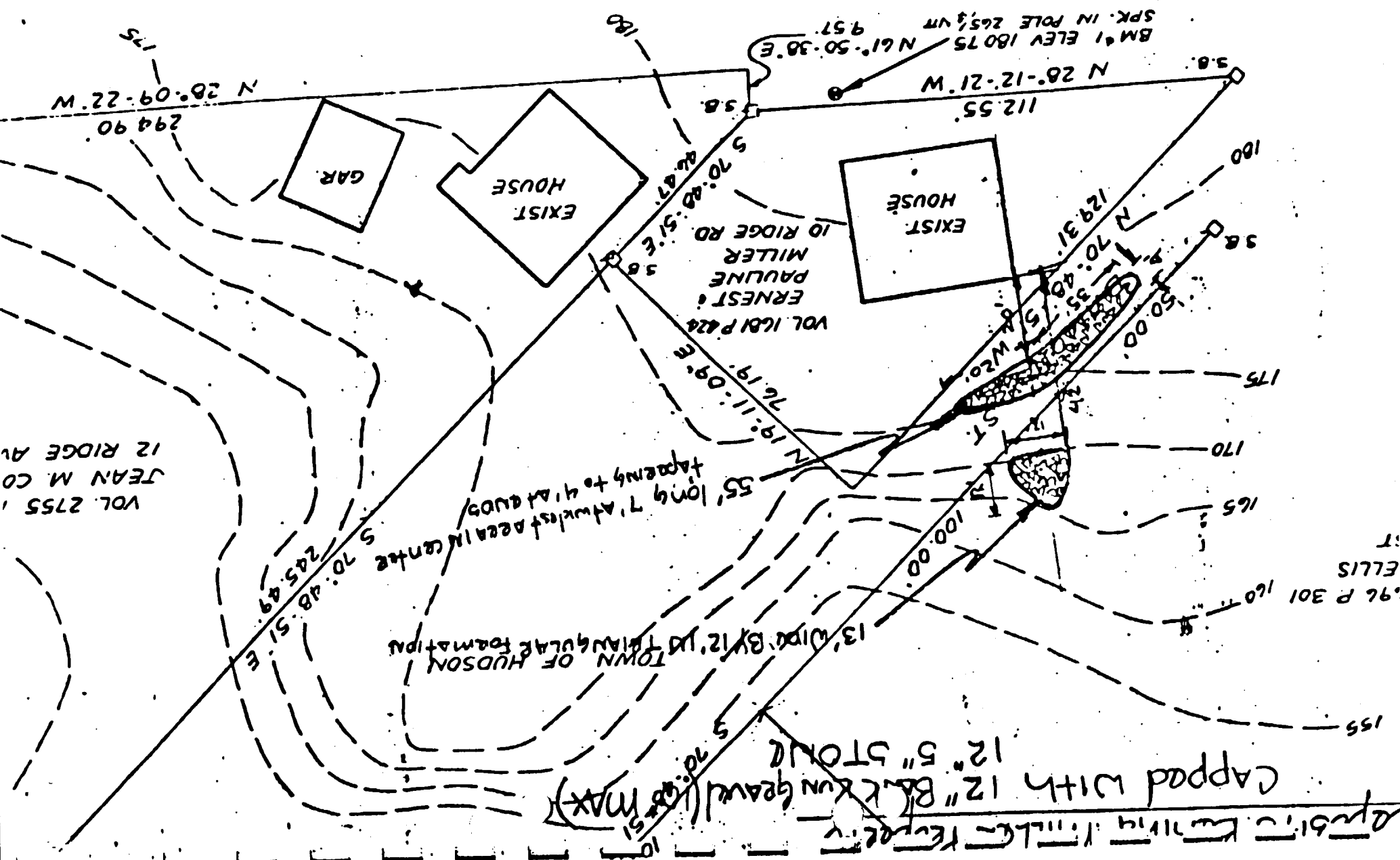
Attachment 2Y







AVENUE RIDGE



applied with 12" Black Run gravel (10 max)
capped with 12" 5" stone

ELLIS
96 P 301

VOL 2755
JEAN M CO
12 RIDGE AV

TOWN OF HUDSON
13' wide by 12' 10' triangular formation
55' long 7' widest area in center
tapering to 4' at ends

VOL 1681 P 424

ERNEST
PAULINE
10 MILLER

EXIST.
HOUSE

EXIST.
HOUSE

GAR

BM 1 ELEV 180.75
SPK. IN POLE 265 1/2 VM
N 61° 50' 38" E
9.57

N 28° 12' 21" W

112.55

N 28° 09' 22" W

294.90

175

160

175

170

165

155

100.00

50.00

50.00

50.00

50.00

50.00

50.00

50.00

50.00

50.00

50.00

50.00

50.00

50.00

50.00

50.00

BORTY LINE AND TOPOGRAPHIC PLAN OF LAND IN HUDSON, N.H.

SCALE 1"=30'

DECEMBER 5, 1983

#

S 1	SE CORNER OF THE MILLER PROPERTY	0-3"	SOIL COVER
		3"-8"	ASBESTOS
S 2	40' NNE OF S 1 ON MILLER PROPERTY	0-15"	SOIL COVER
		1.5"-8"	ASBESTOS
S 3	65' NNE OF COOLIDGE HOUSE	0-3"	SOIL COVER
		3"-8"	ASBESTOS
S 4	10' NNE OF COOLIDGE HOUSE	0"-5"	SOIL COVER
		5"-30"	GRAVEL
S 5	40' NE OF COOLIDGE HOUSE	0"-6"	TOPSOIL
		6"-12"	ASBESTOS
S 6	80' NE OF COOLIDGE HOUSE	0-5"	TOPSOIL
		5"-30"	ASBESTOS
S 7	40' EAST OF COOLIDGE HOUSE	0-5"	TOPSOIL
		5"-30"	ASBESTOS
S 8	100' EAST OF COOLIDGE HOUSE	0-3"	TOPSOIL/GRAVE
		3"-30"	ASBESTOS
S 9	75' EAST OF COOLIDGE HOUSE	0-5"	TOPSOIL/GRAVE
		5"-30"	ASBESTOS
S 10	85' ESE OF COOLIDGE HOUSE	0-7"	TOPSOIL
		7-30"	ASBESTOS
S 11	10' ESE OF COOLIDGE HOUSE	0-5"	TOPSOIL
		5"-30"	GRAVEL
S 12	40' SSE OF COOLIDGE HOUSE	0-15"	TOPSOIL/GRAVE
S 13	85' SE OF COOLIDGE HOUSE	0-30"	SOIL
S 14	120' ESE OF COOLIDGE HOUSE	0-30"	SOIL
S 15	150' EAST OF COOLIDGE HOUSE	0-15"	SOIL
S 16	105' NNE OF COOLIDGE HOUSE	0-30"	SOIL
S 17	100' NNE OF COOLIDGE HOUSE	0-30"	ASBESTOS
S 18	125' EAST OF COOLIDGE HOUSE	0-30"	ASBESTOS
S 19	115' ESE OF COOLIDGE HOUSE	0-30"	ASBESTOS
S 20	75' ESE OF COOLIDGE HOUSE	0-30"	ASBESTOS



EASTERN ANALYTICAL LABORATORIES, INC.
ONE "A" STREET BURLINGTON, MASSACHUSETTS 01803

TELEPHONE (617) 272-8212

September 27, 1983

Environmental Protection Agency
Mr. Paul Groulx
60 Westview Street
Lexington, MA 02173

*See Hudson N.H.
Note:*

Dear Mr. Groulx:

Please find enclosed our analysis for asbestos on the bulk samples (four) you submitted to us.

Analyses were performed using standard optical microscopy and petrographic techniques. A representative portion of each bulk sample was placed on a glass slide, immersed and macerated in appropriate index oils. This was then examined under plane and fully polarized light on the petrographic microscope. The following features were used to identify unknown particles and fibers; morphology (shape), extinction angle, crystallographic orientation, index of refraction, birefringence, size, color, etc. A photomicrograph of each sample is included to aid you in our description of phases present.

Analytical results (compositions and percentages) are listed on the bulk report forms attached. In samples where asbestos was not present, the following applies since it is impossible to prove the absence of a substance. It can be said that asbestos, if present, is in concentrations of <.1%. Modal percentages are estimated by visual modal estimation comparison charts and standard weight/weight mixtures of kaolinite clay and amosite asbestos.

Should you have any questions, or need additional information, please do not hesitate to contact me at any time.

Sincerely,
EASTERN ANALYTICAL LABORATORIES

Vernon E. Robertson
Vernon E. Robertson

VER/js

EASTERN ANALYTICAL LABORATORIES, BULK SAMPLE ASBESTOS ANALYSIS

CLIENT: EPA LOCATION: COOLIDGE

Analyzed by: VER/KMF on: 27-Sep-83

Amount: 1-10 mg. Preparation: Macerated in n=1.590 index oil

Method: Polarized Light Microscopy (PLM) Det. limit=<0.1%

x 1 (COOLIDGE, EPA)

20-30 :PERCENT TOTAL ASBESTOS

Amosite: NO	Fiberglass: NO	Clay: YES
Chrysotile: YES	Rock wool: NO	Line: NO
Crocidolite: NO	Cellulose: NO	Vermiculite: NO
Anthophyllite: NO	Synthetic: NO	Gangue suite: NO
Other: NO	Other: NO	Other: YES (humus)

NON-ASBESTOS FIBER, PERCENT TOTAL: NONE OBSERVED

NON-FIBROUS CONTENT: 70-80

APPEARANCE: Heterogeneous, mixed brown fibrous dirt

x 2 (COOLIDGE, EPA)

10-20 :PERCENT TOTAL ASBESTOS

Amosite: NO	Fiberglass: NO	Clay: YES
Chrysotile: YES	Rock wool: NO	Line: YES
Crocidolite: NO	Cellulose: NO	Vermiculite: NO
Anthophyllite: NO	Synthetic: NO	Gangue suite: NO
Other: NO	Other: NO	Other: NO

NON-ASBESTOS FIBER, PERCENT TOTAL: NONE OBSERVED

NON-FIBROUS CONTENT: 80-90

APPEARANCE: Heterogeneous, mixed beige/brown fiber & powder matte

x 3 (COOLIDGE, EPA)

0-20 :PERCENT TOTAL ASBESTOS

Amosite: NO	Fiberglass: NO	Clay: YES
Chrysotile: YES	Rock wool: NO	Line: YES
Crocidolite: NO	Cellulose: NO	Vermiculite: NO
Anthophyllite: NO	Synthetic: NO	Gangue suite: NO
Other: NO	Other: NO	Other: NO

NON-ASBESTOS FIBER, PERCENT TOTAL: NONE OBSERVED

NON-FIBROUS CONTENT: 80-90

APPEARANCE: Heterogeneous, mixed beige/brown fiber & powder matte

x 4 (COOLIDGE, EPA)

10-20 :PERCENT TOTAL ASBESTOS

Amosite: NO	Fiberglass: NO	Clay: YES
Chrysotile: YES	Rock wool: NO	Line: YES
Crocidolite: NO	Cellulose: NO	Vermiculite: NO
Anthophyllite: NO	Synthetic: NO	Gangue suite: NO
Other: NO	Other: NO	Other: YES (humus)

NON-ASBESTOS FIBER, PERCENT TOTAL: NONE OBSERVED

NON-FIBROUS CONTENT: 80-90

APPEARANCE: Heterogeneous, mixed brown fiber & powder matte

Asbestos Bulk Samples from

Tef store

Cecilidye Property

③ 11.13

Tef at store
② 11.12

Weeded area in back

① 11.10
tree stump down embankment

Swing
see

11.14 ④ back yard

my
near
door

Cecilidye
house

Garage

Property Line

12 Ridge Avenue



-1-

INTRODUCTION

The Ridge Avenue, Hudson, NH asbestos site is an area approximately 1/3 acre in size, located behind #10 and #12 Ridge Avenue. This landfill is estimated to contain 6000 tons of asbestos board and baghouse asbestos. This material was probably deposited here over 30 years ago since the residents of #10 Ridge Avenue have lived at that location for thirty years and never observed dumping operations in the area.

During an initial inspection of the site, asbestos debris could be seen in various areas, especially around tree roots and in areas where the existing soil had been eroded.

The purpose of this project was to cover the dumpsite using gravel, 5 inches of rock and topsoil. ESA Laboratories, Inc. (ESAL) had the responsibility of environmental air monitoring for asbestos during the course of the project.



MATERIALS AND METHODS

Sampling for airborne asbestos was performed to determine concentration levels (1) in the breathing zone of the workers within the contaminated area, and (2) at fixed area stations located outside the worksite.

The personal samples were collected on the workers using Bendix Model 44 personal sampling pumps or Gilian Model #HFS 113U personal sampling pumps, equipped with Millipore 0.8 micron AA filter cassettes. Calibration of flow rate was conducted at the beginning and end of each sampling period with a Kurtz 541S Flow Calibrator. Primary calibration is performed on this instrument on a quarterly basis. The pumps were run for the duration of the workshift in order to get accurate time weighted averages.

BGI high volume air sampling pumps equipped with critical orifices and the Millipore AA cassettes were used in the perimeter station air sampling. As with the personal samples, they were run for the duration of the workshift.

In general, three personal and four area samples were taken per day. In order to get a good gradation of possible exposures, the personal samples were taken on a supervisor who generally stayed outside the restricted area of the worksite, on a laborer inside the site, and on the case loader operator who spent most of his time inside the site, but within the caseloader cabin. The perimeter samples varied from day to day, but in general were placed in positions which would detect airborne fibers escaping from the worksite in a variety of directions (see Appendix 1). Wipe samples were taken using AA filters on one square foot surfaces, both inside and outside the homes surrounding the worksite. The wipe samples were obtained by removing the filter from the cassette and sweeping it across the surface to be sampled. In



the case of rug sampling, a vacuum technique was employed where a BGI pump was used with a filter to obtain material throughout the thickness of the rug.

Analyses of the air samples were performed at the worksite using phase contrast microscopy according to NIOSH Method #P&CAM 239. Wipe samples were analyzed using a combination of phase contrast and polarized light microscopy. Polarized light microscopy is a method to differentiate between crystalline anisotropic material and from non-crystalline isotropic material. Anisotropic material means crystalline material with two refractive indices oriented in different directions. Isotropic means only one index of refraction. All forms of asbestos fiber are crystalline anisotropic materials. However, further analysis is required to positively identify the sample as asbestos.

Each day weather conditions were recorded and a daily map was made to indicate fixed sampling station sites. Laboratory quality control studies are carried out on a quarterly basis. Daily on-site quality control was performed by having every tenth sample counted by two counters.



-4-

TEST RESULTS

The results of the air sampling performed at the Ridge Avenue (Hudson, NH) asbestos containment site are given in Tables 1 through 8.



-5-

TABLE 1

Hudson, NH

Date: 4-23-84

Weather: Sunny, dry, light wind from north
Work Done: Baseline samples taken

<u>Sample #</u>	<u>Type</u>	<u>Location</u>	<u>Time (min.)</u>	<u>Flow (lpm)</u>	<u>Results</u>
5	Air-TFC	Behind #12 Ridge	202	11.3	less than 0.01 f/cc*
6	Air-TFC	Across from #10 Ridge	164	10.6	less than 0.01 f/
8	Air-TFC	Left Edge of Slope on Plateau	128	2.0	less than 0.01 f/cc
9	Air-TFC	Back Edge of Plateau	129	2.0	less than 0.01 f/cc
1	Wipe	#10 Ridge, Rug in Dining Room	---	----	3% suspect fibers 97% other fibers
2	Wipe	#10 Ridge, 1 sq. ft. Top of Refrigerator	---	----	No asbestos 100% nonfibrous
3	Wipe	#10 Ridge, 1 sq. ft. Cement Floor - Back Porch	---	----	No asbestos 95% nonfibrous 5% other fibers
4	Wipe	#12 Ridge, 1 sq. ft. Top of Refrigerator	---	----	No asbestos 95% nonfibrous 5% other fibers
7	Wipe	#12 Travers, 1 sq. ft. Top of Refrigerator	---	----	No asbestos 100% nonfibrous

Comments:

More sampling should be performed on #10 Ridge dining room rug to clarify if there is asbestos contamination of the rug.

* fibers/cubic centimeter



-6-

TABLE 2

Hudson, NH

Date: 4-25-84

Weather: 52°, partly cloudy, wind coming from the west, light mist and rain
Work Done: Grading of plateau area

<u>Sample #</u>	<u>Type</u>	<u>Location</u>	<u>Time (min.)</u>	<u>Flow (lpm)</u>	<u>Results</u>
1P	Air-TFC	Personal Sample Skip Rich - Loader Operator	445	1.8	0.01 f/cc
2P	Air-TFC	Personal Sample Mike Mannion - Laborer	493	2.0	0.02 f/cc
3P	Air-TFC	Personal Sample Gino Laflame-Supervisor	491	2.0	0.01 f/cc
1A	Air-TFC	Station 1A - On Roof of #12 Ridge	487	10.6	less than 0.01 f/cc
2A	Air-TFC	Station 2A - Across the Street from #10 Ridge on the Lawn of #12 Ridge	484	11.5	less than 0.01 f/cc
3A	Air-TFC	Station 3A - Behind #10 Ridge on Picnic Table	481	10.5	less than 0.01 f/cc
4A	Air-TFC	Station 4A - Backyard of #9 Ferry Avenue	468	11.3	less than 0.01 f/cc
4A	Air-TFC	Quality Control	468	11.3	less than 0.01 f/cc
8	Wipe	1 sq. ft. sample Taken from Top of Fridge at #21 Blackstone Street	---	----	No asbestos 50% nonfibrous 50% other fibers
9	Wipe	1 sq. ft. sample Taken from Top of Fridge at #6 Ridge Ave.	---	----	No asbestos 60% nonfibrous 40% other fibers

Comments:

All perimeter area samples were below our detection limits.



-7-

TABLE 3

Hudson, NH

Date: 4-26-84

Weather: 55°, partly cloudy, light wind coming from the northwest
Work Done: Grading of slope with Gradall

<u>Sample #</u>	<u>Type</u>	<u>Location</u>	<u>Time (min.)</u>	<u>Flow (lpm)</u>	<u>Results</u>
1P	Air-TFC	Personal Sample Skip Rich - Ran Loader Until 1 pm then worked outside directing Gradall	259 (7:30 - 11:57)	1.15	less than 0.01 f/cc
1PA	Air-TFC	Personal Sample Skip Rich	149 (12:35 - 3:04)	0.80	0.02 f/cc
2P	Air-TFC	Personal Sample Norman Geis - Spraying Down Slope	161 (7:43 - 10:24)	1.85	0.04 f/cc
2PA	Air-TFC	Personal Sample Norman Geis	238 (10:28 - 11:58 & 12:38 - 3:06)	1.85	0.04 f/cc
3P	Air-TFC	Personal Sample Gino Laflame-Oversees Operation - Worked in Actual Work Area Approx. 20 mins., Otherwise Working Around Perimeter	411 (7:44 - 11:56 & 12:51 - 3:30)	2.00	0.01 f/cc
1A	Air-TFC	Area Sample - Roof of #12 Ridge	494 (8:05 - 4:19)	10.6	less than 0.01 f/cc
2A	Air-TFC	Area Sample - Across From #10 Ridge	493 (7:58 - 4:11)	11.5	less than 0.01 f/cc
3A	Air-TFC	Area Sample - Back of #10 Ridge	497 (8:17 - 4:34)	10.5	less than 0.01 f/cc
4A	Air-TFC	Area Sample - #9 Ferry Avenue	420 (8:30 - 3:30)	11.3	less than 0.01 f/cc

Comments:

All perimeter area samples were below our detection limits.

053

-8-

TABLE 4

Hudson, NH

Date: 4-27-84

Weather: 61°, sunny and clear, light wind from the north
 Work Done: Grading of slope using Gradall, Bobcat & W20 Case Loader

<u>Sample #</u>	<u>Type</u>	<u>Location</u>	<u>Time</u> (min.)	<u>Flow</u> (lpm)	<u>Results</u>
1P	Air-TFC	Personal Sample Norman Geis - Working Outside Ahead of Gradall Spraying Down Slope	507 (7:15 - 11:52) (12:45 - 4:34)	1.0	0.05 f/cc
2P	Air-TFC	Personal Sample Gino LaFlame - Oversees Operation. Remains in Perimeter Areas Only	471 (7:16 - 11:49) (12:46 - 4:04)	1.7	0.02 f/cc
3P	Air-TFC	Personal Sample Skip Rich - Helped With Grading of Slope by Driving Bobcat	512 (7:09 - 11:52) (12:44 - 4:33)	1.9	0.01 f/cc
1A	Air-TFC	Area Sample - Roof of #12 Ridge	488 (7:26 - 3:34)	10.6	less than 0.01 f/cc
2A	Air-TFC	Area Sample - Across From #10 Ridge	463 (7:37 - 3:22)	11.5	less than 0.01 f/cc
3A	Air-TFC	Area Sample - Back of #10 Ridge	511 (7:43 - 4:14)	10.5	less than 0.01 f/cc

Comments:

Attachment 4m



TABLE 5

Hudson, NH

Date: 4-30-84

Weather: 58-75°, dry, hazy sunshine, no wind early, breezy from SW in afternoon
Work Done: Continue to grade slope with Gradall, Bobcat & Case Loader, needed water for dust control

<u>Sample #</u>	<u>Type</u>	<u>Location</u>	<u>Time (min.)</u>	<u>Flow (lpm)</u>	<u>Results</u>
1P	Air-TFC	Personal Sample Skip Rich - Caseloader Operator	546 (7:14 - 11:52) (12:47 - 5:15)	2.0	less than 0.01 f/cc
2P	Air-TFC	Personal Sample Guy Sheldon - Working on Slope	365 (10:07 - 11:50) (12:49 - 5:11)	1.85	0.02 f/cc
3P	Air-TFC	Personal Sample Gino LaFlamme Supervisor, on Perimeter	515 (7:31 - 11:50) (12:50 - 5:06)	1.8	less than 0.01 f/cc
1A	Air-TFC	Roof of #12 Ridge	470 (7:40 - 11:30) (12:52 - 4:52)	11.5	less than 0.01 f/cc
2A	Air-TFC	Across from #10 Ridge	450 (7:50 - 11:28) (12:56 - 4:48)	11.5	less than 0.01 f/cc
3A	Air-TFC	Behind #10 Ridge	448 (8:10 - 11:32) (12:58 - 5:04)	10.6	less than 0.01 f/cc
4A	Air-TFC	Corner of Ridge and Travers Street	432 (8:28 - 11:38) (12:54 - 4:56)	11.3	less than 0.01 f/cc
3A-4/27	Air-TFC	Quality Control (KS)	511	10.5	less than 0.01 f/cc
3A-4/27	Air-TFC	Quality Control (RG)	511	10.5	less than 0.01 f/cc
#10	Wipe	#10 Travers Street On Top of Fridge	---	----	No asbestos 10% other fibers 90% nonfibrous

Comments:

All perimeter area samples were below our detection limits.



-10-

TABLE 6

Hudson, NH

Date: 5-1-84

Weather: 60°, dry, moderate wind from the north, sunny in a.m., cloudy in p.m.
Work Done: Building of a support wall of large blasted rock at base of slope.
Covering slope with 5 inches of rock, using Gradall, Bobcat and Caseloader

<u>Sample #</u>	<u>Type</u>	<u>Location</u>	<u>Time (min.)</u>	<u>Flow (lpm)</u>	<u>Results</u>
1P	Air-TFC	Personal Sample Gino LaFlamme - Supervisor Oversees Operation, In and Out of Work Area All Day	493 (6:58 - 11:52) (12:45 - 1:02) (1:56 - 5:06)	1.95	0.02 f/cc
2P	Air-TFC	Personal Sample Skip Rich - Driver of W20 Caseloader	543 (7:02 - 11:55) (12:46 - 4:56)	1.85	0.02 f/cc
3P	Air-TFC	Personal Sample Mike Mallard - Working on the Ground Moving Rocks by Hand	527 (7:05 - 11:53) (12:47 - 5:12)	1.8	0.03 f/cc
1A	Air-TFC	Area Sample - Roof of #12 Ridge	500 (7:13 - 11:42) (12:36 - 4:36)	10.6	less than 0.01 f/cc
2A	Air-TFC	Area Sample - Across From #10 Ridge	497 (7:22 - 11:39) (12:36 - 4:36)	11.5	less than 0.01 f/cc
3A	Air-TFC	Area Sample - Behind #10 Ridge	504 (7:31 - 11:44) (12:32 - 4:43)	11.3	less than 0.01 f/cc

Comments:

Attachment 4c



-11-

TABLE 7

Hudson, NH

Date: 5-2-84

Weather: 46°, dry, gusty wind from SSW, partly cloudy

Work Done: Covering of slope with 5 inch rock, using Gradall, Bobcat & Caseloader

Sample #	Type	Location	Time (min.)	Flow (lpm)	Results
1P	Air-TFC	Personal Sample Fred Orrico - Raking and Moving Rocks on the Slope	478 (7:11 - 11:58) (12:56 - 4:07)	1.95	0.02 f/cc
2P	Air-TFC	Personal Sample Gino LaFlamme - Suprvsr In and Out of Work Area All Day	466 (7:13 - 11:52) (12:54 - 4:06)	1.90	0.02 f/cc
3P	Air-TFC	Personal Sample Skip Rich - W20 Caseloader Operator	495 (7:17 - 11:58) (12:58 - 2:45) (3:15 - 5:02)	1.85	less than 0.01 f/cc
1A	Air-TFC	Area Sample - Roof of #12 Ridge	492 (7:31 - 11:59) (1:00 - 4:44)	10.6	less than 0.01 f/cc
2A	Air-TFC	Area Sample - Across From #10 Ridge	472 (7:42 - 11:54) (1:02 - 4:42)	11.5	less than 0.01 f/cc
3A	Air-TFC	Area Sample - Behind #10 Ridge	474 (7:51 - 11:59) (1:01 - 4:47)	11.3	less than 0.01 f/cc
#11	Wipe	#10 Ridge Vacuum Wipe From Dining Room Rug Near Door	---	----	<1% suspected asbestos 10% cellulose 90% nonfibrous
#11	Bulk	#10 Ridge Vacuum Wipe From Dining Room Rug Near Door	---	----	No asbestos present 30% cellulose 70% nonfibrous
#12	Wipe	#10 Ridge Wipe Off Rear Door and Windowsill	---	----	<1% suspected asbestos 10% cellulose 90% nonfibrous



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TABLE 7 (Continued)

Hudson, NH

Date: 5-2-84

Weather: 46°, dry, gusty wind from SSW, partly cloudy

Work Done: Covering of slope with 5 inch rock, using Gradall, Bobcat & Caseloader

<u>Sample #</u>	<u>Type</u>	<u>Location</u>	<u>Time (min.)</u>	<u>Flow (lpm)</u>	<u>Results</u>
#12	Bulk	#10 Ridge Wipe Off Rear Door and Windowsill	---	----	No asbestos present 60% cellulose 40% nonfibrous
#13	Wipe	Drive through menu of Dairy Queen	---	----	No asbestos present 100% nonfibrous

Comments:

In those samples containing suspected asbestos (#11 and #12), the corresponding bulk samples show no asbestos.



-13-

TABLE 8

Hudson, NH

Date: 5-7-84

Weather: 77°, sunny, dry, no wind
Work Done: No ongoing work being performed.

<u>Sample #</u>	<u>Type</u>	<u>Location</u>	<u>Time (min.)</u>	<u>Flow (lpm)</u>	<u>Results</u>
#14	Wipe	#12 Ridge Top Of Refrigerator 1 sq. ft.	---	----	No asbestos present 65% total fibers
#15	Wipe	#12 Travers - Bulkhead 1 sq. ft.	---	----	No asbestos present 10% total fibers
#16	Wipe	#21 Blackstone Street (Across From #10 Ridge) Bulkhead - 1 sq. ft.	---	----	No asbestos present <1% total fibers

Comments:

In those samples containing suspected asbestos (#11 and #12), the corresponding bulk samples show no asbestos.



DISCUSSION AND RECOMMENDATIONS

The Federal Permissible Exposure Limit for airborne asbestos is 2.0 fibers per cubic centimeter of air averaged over an 8 hour workshift. All personal air samples taken during this work were well below this standard. The highest personal air sample was obtained on Norman Geis (laborer) on April 27, 1984 with a value of 0.05 f/cc. These low values are not surprising, since there was little disturbance of the exposed asbestos during the encapsulation procedure.

From 4/23 to 4/30, all workers within the restricted zone were required to wear Tyvek anti-contamination suits, boots, gloves, hoods and full face mask negative pressure respirators. The use of this equipment was discontinued at 4 PM on 4/30/84 due to the consistently low values that were being obtained during the personal sampling, and the fact that the site was completely covered by gravel by this date.

The high volume perimeter air sample values were below detection limits (0.01 f/cc) at all stations on all sampling dates, which indicates that airborne asbestos was not being generated, then transported out of the worksite.

The wipe samples analyses showed no settled asbestos dust in the areas sampled both before and after the encapsulation had begun. Initially, a rug sample from #10 Ridge showed a result of 3% suspect fibers on analysis by the phase contrast/polarized light technique. Further sampling was done in this area, and enough material was collected to perform a bulk sample analysis by polarized light microscopy with dispersion staining. The results showed that no asbestos was contained in the rug.



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In summary, the results of this asbestos monitoring project show that there was minimal asbestos exposure to the on-site workers, and no asbestos exposure to the areas surrounding the site. These results are what would be expected from observation of the work procedures since there was little disturbance of the asbestos material during the project.

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SITE SAFETY/HEALTH PROTOCOL

for
Ridge Avenue Site
Hudson, New Hampshire
OHM Project No. 1775-E8
Contract No. 68-01-6893
Delivery Order No. 6893-01-001

April/May 1984

Prepared for:

Paul Groulx
On-Scene Coordinator
USEPA Region I

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A. PURPOSE

The purpose of this plan is to assign responsibilities to EPA and contractor personnel relative to safety and site security, to establish personnel safety/protection standards and mandatory safety operating procedures relative to physical and chemical hazards encountered on the site, to establish contamination zones and decontamination procedures, and to provide for contingencies which may arise during the course of the remedial action.

B. APPLICABILITY

This protocol addresses the safety procedures that will be followed by any and all personnel visiting the site or involved in the CERCLA removal activity at the Ridge Avenue site. All personnel entering the site shall read and sign this safety plan. The protocol will remain in effect until the OSC certifies that the activity is terminated. It does not supercede any Federal OSHA or State or local regulations but is in addition to them. In the event of a conflict between this protocol and a regulation, the more stringent of the two will be in force. The protocol is in accordance with and refers to the terminology used in the Office of Emergency and Remedial Response (OERR), Interim Standard Operating Safety Procedures.

C. RESPONSIBILITIES

1. On-scene Coordinator (OSC)

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) authorizes the OSC to coordinate and direct federally financed response or cleanup activities at the site. The NCP also makes the OSC responsible for addressing worker safety concerns at a response scene (See 40 CFR 300.33(b) and (b)(10)).

At this asbestos dump site, the primary responsibilities of the OSC relative to safety shall be:

- a. To ensure that all personnel allowed to enter the site (i.e., EPA, TAT, contractors, State, visitors) are aware of the potential hazards associated with substances known or suspected to be on the site;
- b. To ensure that said personnel are aware of the provisions of this plan and are instructed in the safety practices defined in the plan, including its emergency procedures;
- c. To ensure that the appropriate safety equipment is available and properly utilized by all personnel on the site;

- d. To direct the safety monitoring efforts of the Site Safety Officer; and,
- e. To correct any work practices or conditions under this control that may result in exposure to hazardous substances or injury to personnel.

The On-scene Coordinator for these sites is Paul Groulx. The OSC may alter this Health and Safety Plan to fit on-site conditions.

2. Safety Officer

In accordance with the EPA's Occupational Health and Safety Manual, as ordered by Executive Order 12196: "The Safety Officer is responsible for implementing the safety plan at the site."

At the Hudson asbestos dump site, the Safety Officer shall:

- a. Monitor compliance of workers relative to pre-established personnel protection levels (i.e., use of necessary clothing and equipment to ensure the safety of personnel;
- b. Notify the OSC of discrepancies or violations of safety plan; and,
- c. Evaluate weather and chemical hazard information, and recommend to the OSC any necessary modifications to work plans and personnel protection levels to maintain personnel safety.

The Safety Officer for this site shall be designated by the OSC.

3. Response Manager

In accordance with the Site Safety/Health Protocol, the Response Manager will direct the action of all contract personnel and ensure compliance of safety procedures.

The Response Manager for this site will be Pat Hoopes of O.H. Materials Co. Any accidents or injuries, no matter how minor will be reported to the Response Manager who will report to the OSC. All accidents will be recorded on Accident Report and a copy provided to the OSC.

D. SAFETY PROCEDURES AND LEVELS OF PROTECTION

1. Respiratory Protection Program

All contractor and governmental personnel involved in on-site activities shall have a written respiratory protection program. All personnel wearing air-purifying respirators on-site are required to be fit tested, be physically qualified to wear a respirator, and must be properly trained and experienced in their use. All respiratory protection equipment is to be properly decontaminated at the end of each workday.

Persons having beards or facial hair will not wear a respirator, nor enter areas requiring respiratory protection.

2. Training and Medical Monitoring Program

Personnel will have either formal training or on-the-job training for those tasks they are assigned to perform on the active site. All unfamiliar activities will be rehearsed beforehand.

All contractor and governmental personnel who are exposed to hazardous levels of chemicals shall be enrolled in a medical monitoring program.

3. General Safety Rules and Equipment

- a. There will be no eating, drinking, or smoking in the Exclusion Area or hot side of the Contamination Reduction Area.
- b. All personnel must pass through the Contamination Reduction Area to enter the Exclusion Area.
- c. As a minimum, an emergency deluge shower/spray can is to be located on the clean side of the Contamination Reduction Area.
- d. Where practical, all tools/equipment will be spark proof, explosion resistant and/or bonded and grounded.
- e. Fire extinguishers will be on-site for equipment or personnel fires only.
- f. Since site evacuation may be necessary if an explosion, fire, etc., occurs on-site, an individual shall be assigned to sound a horn. For example, the evacuation signal may be two long blasts every 30 seconds until all personnel are evacuated and accounted for. This procedure will be reviewed at each morning's safety meeting.
- g. A first-aid kit will be on-scene at all times during operational hours.

a. The Exclusion Area (EA)

At the Ridge Avenue site, the Exclusion Area (EA) shall include all areas between the creek and slope, the slope, and the plateau to a line between the Coolidge and Miller residence.

All personnel shall enter and exit the Exclusion Area through the Contamination Reduction Area.

Emergency escape routes from the Exclusion Area will be established and reviewed as appropriate at each morning safety meeting.

All personnel in the Exclusion Area shall use the protective equipment designated for their job function but in no case shall less than LEVEL C respiratory protection be used when areas of uncovered asbestos still remain.

b. The Contamination Reduction Area (CRA)

At the Ridge Avenue site, the Contamination Reduction Area will be located next to the decon trailer parked in the Miller driveway and will be delineated by a roped off area.

Personnel and equipment decontamination will be performed in Level C.

All personnel entering the CRA will utilize a minimum of Level C protection.

All equipment and personnel entering the CRA from the EA must be decontaminated prior to leaving the CRA.

c. The Support Area (SA)

At the Ridge Avenue site, the Support Area will be all areas outside the Exclusion Area including the front yards of Miller and Coolidge residences, and Ridge Avenue from the Miller property line to the Coolidge property line. The roadway will be roped or barricaded at these points. This support area will be maintained as a clean area.

No contaminated equipment or personnel may enter the Support Area.

Level D will be appropriate for all personnel in the Support Area.

Emergency escape routes and procedures for the SA will be established and reviewed as appropriate at each morning safety meeting.

Attach-

7. Personnel Protection

Personnel protective equipment and safety requirements must be appropriate to protect against the known or worst potential hazards on the site. Protective equipment should be selected based on the concentrations and possible routes of personnel exposure to known or potential worst case substances.

The appropriate level of protection shall be determined prior to the initial entry on-site based on best available information. Subsequent information may result in changing the original level selected.

Site history indicates that at this site asbestos is the primary and sole contaminant. There has been no indication that any other contaminants have been deposited.

8. Levels of Personnel Protection

Level C (Normal)

Level C protection should be selected when the types and concentrations of respirable materials are known, have adequate warning properties, or are reasonably assumed to be not greater than the protection factors associated with air-purifying respirators. Continuous monitoring of site and/or individuals shall be established.

Level D

Level D is the basic work uniform and should be worn for all site operations. Level D protection should only be selected when sites are positively identified as having no toxic chemicals.

a. Level C (Normal Operations)

Personal Protective Equipment:

- o Full-face,* air-purifying respirator (MSHA/NIOSH approved) with asbestos cartridges
- o Chemical resistant clothing - Asbestos Tyvek
- o Tyvek hood
- o Gloves - Outer (taped to tyvek suit)
- o Gloves - Inner
- o Hard Hat (face shield, optional)
- o Boots - outer (chemical-protective, steel toe and shank) (taped to tyvek suit)

- o Two-way radio communications, when required
- o Equipment operators may substitute for face protection with half-face respirators and dust proof goggles

Criteria for Use:

Meeting all of these criteria permits use of Level C protection:

- o Measured air concentrations of identified substances will be reduced by the respirator to at or below the substance's exposure limit, and the concentration is within the service limit of the canister.
- o Atmospheric contaminant concentrations do not exceed IDLH levels.
- o Atmospheric contaminants, liquid splashes, or other direct contact will not adversely affect the small area of skin left unprotected by chemical-resistant clothing.
- o Job functions have been determined not to require self-contained breathing apparatus.
- o Total vapor readings register between background and 5 ppm above background on instruments such as the HNU Photoionizer and Century OVA System.
- o Air will be monitored periodically.

b. Level D

Personal Protective Equipment:

- o Coveralls
- o Boots/Shoes - Safety or chemical-resistant steel-toed boots
- o Boots - Outer (chemical-protective heavy rubber throw-away), when necessary
- o Half-face respirators immediately available, when necessary
- o Safety glasses or safety goggles, when necessary
- o Gloves, when necessary
- o Hard hat

Criteria for Use:

- o No indication of airborne health hazards present;
- o No gross indication above background on the photoionizer and/or organic vapor analyzer; and,
- o Work functions preclude splashes, immersion or unexpected inhalation or any chemical.

E. DECONTAMINATION PROTOCOL

Decontamination Protocol will involve the thorough decontamination of all equipment and personnel leaving the EA and CRA areas. The exact decontamination techniques applicable for this site will be determined by the OSC and/or his designated site safety officer. Such determination will be made and implemented on the first day of site activities. Changes to the decontamination techniques will be as dictated by the OSC, to accommodate changing site operations.

The basic outline for Decontamination Protocol will involve.

1. Personnel Decontamination

Upon exiting the Exclusion Area all personnel are required to decon by means of the following procedure:

- a. Walk through shuffle pit to remove any gross contaminants
- b. Scrub down outer boots in decon solution with soap and water and wash off boots in rinse solution
- c. Remove boots and place upside down on boot rack
- d. If wearing reusable raingear, it should be scrubbed down with decon solution, rinse, and then hung on pegs
- e. Disposable tyveks should be removed and placed in trash barrels located outside of decon trailer
- f. Remove disposable gloves and place in trash barrel
- g. Use a new set of disposable gloves to clean any equipment
- h. Remove respirator and place spent cartridges in the trash barrel

- i. Hard hats, respirators, and deconned equipment can be stored inside the decon trailer. Respirators should be rinsed in sanitation solution at the end of each day.
- j. Showers will be available in the decontamination trailer.

2. Equipment Decontamination

- a. Decontamination of equipment frequently entering and exiting the site will take place on the access road behind the Contamination Reduction Area. The tires and undercarriage of these vehicles will be sprayed with a water stream. Care will be taken to ensure that the runoff does not leave the site.
- b. Decontamination of equipment which is permanently on site shall be accomplished at the end of the emergency phase. The equipment will be decontaminated with the use of hot water and/or detergent washer. The run-off will be collected where it will be buried with the final load of gravel brought onto the site.

F. ASBESTOS ABSTRACT

Asbestos is a general name given to a variety of fibrous minerals. The major asbestos minerals are chrysotile, crocidolite, amosite, and anthophyllite. Over 90 percent of the asbestos used commercially is chrysotile.

Inhalation of asbestos may cause asbestosis, pleural or peritoneal mesothelioma, or lung cancer. Mesothelioma is a rare form of cancer which occurs frequently in asbestos workers. All three of these diseases are fatal once they become established. No information is available on the dose required to induce cancer.

Inhalation of asbestos dust has long been recognized as an industrial hazard. Early in this century, exposure to high concentrations of the fibrous dust was causally associated with asbestosis. In 1935 evidence began to accumulate that cancer of the lung is also associated with the inhalation of asbestos. Recently, certain rare cancers, pleural mesotheliomas have been associated with the inhalation of asbestos fibers by asbestos workers.

Asbestosis, pleural calcification, pleural plaques, lung cancer and pleural and peritoneal mesotheliomas can result from exposure to asbestos. Asbestos bodies are commonly found in the lungs of persons exhibiting these complications. Diagnosis of any of these or finding "asbestos bodies" in the

lungs signifies the need to review the case history for previous asbestos exposure. Surveys of people living or working near asbestos mines or factories have revealed that many nonoccupational cases of asbestosis and mesothelioma have occurred either from the polluted air or from asbestos carried home on the workers' clothing.

The fate of the asbestos fiber once it is inhaled and deposited in the lung is still questionable. The short fibers, $<0.5\mu$ in length have been pathologically ignored, probably because they are much too narrow to be visible under a light microscope. The longer fibers which are encrusted in an iron-bearing protein (asbestos bodies) become easily visible. The biological half-life for asbestos appears to be 20 to 90 days, depending on the mineral type. Some of the fibers are removed by phagocytosis to the lymph nodes.

Asbestosis usually develops after long exposure to high concentrations of asbestos dust. The risk varies directly with the length of exposure and the dust concentration. Following continued exposure to high concentrations of dust, asbestosis may develop fully in 7 to 9 years and may cause death as early as 13 years from the onset of exposure. Once established, asbestosis progresses even after the exposure to the dust ceases: illness or death can occur long after exposure to concentrations not producing immediate effects.

It has not been determined whether more than one fiber is necessary to induce a malignant tumor. One theory suggests that the probability of cancer induction is proportional to the number of asbestos fibers, number of susceptible cells, the concentration of carcinogens on the fibers, and the time for exposure.

Why asbestos is carcinogenic is not clearly understood. At least three hypotheses have been advanced:

1. That the fibers act as a physical irritant which after 20 to 30 years of constant irritation induces a tumor
2. That the fibers contain small amounts of carcinogens such as nickel, and chromium which are eluted from the fibers by the serum in the lungs
3. That the fibers accumulate in the lung and are immobilized as "asbestos bodies" which disintegrate after 30 to 40 years

One study found that the number of deaths attributed to cancer of the lung was eight times higher in asbestos workers who smoked cigarettes than in smokers who were not exposed to asbestos.

G. OFF-SITE MIGRATION OF PARTICLES

Due to the nature of the threat posed by asbestos particles, and the potential for airborne migration of these particles off site during removal operations, special operational procedures will be necessary.

Wetting of the asbestos waste is the preferred method for the prevention of airborne contamination. Wetting will be required prior to any heavy equipment operation or other soil disturbance onsite. The site will be wetted manually with a firehose connected to a trash pump.

Periodic inspections of the site surfaces will be made throughout the day to determine the need for re-wetting of the surface. It shall be the responsibility of the site safety officer to continually monitor the relative moisture content of the exposed asbestos waste and determine when re-wetting of the surface is required to prevent the release of particles from the site. Wind speed, temperature, and humidity will all have an effect on the amount of moisture lost through evaporation and should be monitored on an hourly basis.

H. AIRBORNE PARTICLE CONTROL NETWORK

There will be several functional components of the Airborne Particle Control Network. The system is designed to prevent the suspension of asbestos fibers into the atmosphere during the emergency operations. The mechanism of control is the wetting of the asbestos waste prior to the commencement of operations on a daily basis. The wetting will be accomplished through the use of trash pumps and fire hoses. Water will be taken from the stream at the base of the site. The slope and exposed areas will be kept wet but not saturated as monitored by the Safety Officer. Piles of asbestos will be saturated if excavation is required.

Vehicular decontamination procedures will be required to ensure that no mud or dust which might contain asbestos particles is transported off-site on the wheels or undercarriage of the trucks. Trucks will remain on fill material and not drive on uncovered areas.

A continuous air-monitoring program shall be implemented during both the on-site working and non-working hours of this project. The objective of this program is to prevent the off-site migration of airborne asbestos particles.

Also, since Level C protection is applicable, an air monitoring program is necessary. Background data on the materials on-site indicates that the principal air problem will be from asbestos fibers. The following program will therefore, be instituted to identify and quantify this contaminant.

Samples will be drawn along the perimeters of the sites and operations will be adjusted if the analytical results indicate action is appropriate.

Personnel air monitoring will be conducted daily with the personnel sampling surveys with real-time instrumentation and personnel sampling pumps with collection filters. The number of sampling stations and location will vary with atmospheric conditions. Sample stations will be within the suspected contaminated area as well as downwind from the work area and including the surrounding residential community. Sampling protocol will be followed according to NIOSH and EPA approved methodologies.

It shall be the duty of the Safety Officer to ensure that the elements of this Airborne Particle Control Network are properly installed and effectively maintained. Any discrepancies must be reported to the OSC.

1. EMERGENCY PROCEDURES

In the event of a medical emergency, the OSC or his designee will notify the appropriate authority. The following list of phone numbers will be posted prominently at each telephone on-site:

1. Fire - Hudson 603/883-7707
2. Ambulance - Hudson 603/883-7707
3. Police - Hudson 603/883-5508
4. Federal Government - USEPA (24-hour hotline) 617/223-7265
USEPA (office) 617/861-6700
5. State Government - State Police (Concord, NH) 800/852-3411
6. County/City Government - New Hampshire Office of Waste
Management 603/271-4664
7. EPA Environmental Response Team - 201/321-6660
8. Hospitals - Memorial 603/882-5521
9. Poison Information - 603/646-5000 (Hanover, NH)
10. USCE/AST - 800/424-8802
11. O.H. Materials Co. - 800/537-9540
12. Center for Disease Control - 404/329-3311 (day)
404/329-3644 (night)

Routes to local hospitals will be posted in the command post trailer. Any person injured in Exclusion Area will be decontaminated prior to transport to the hospital.

APPENDIX A
SITE/SAFETY PROTOCOL
FOR SOIL TRANSPORTERS

GENERAL

This protocol addresses the safety procedures that will be followed by any and all personnel transporting and depositing soil at the Ridge Avenue site. All personnel entering the site shall read and sign this safety plan. The protocol will remain in effect until the OSC certifies that the activity is terminated. It does not supercede any Federal OSHA or State or local regulations but is in addition to them. In the event of a conflict between this protocol and a regulation, the more stringent of the two will be in force. The protocol is in accordance with and refers to the terminology used in the Office of Emergency and Remedial Response (OERR).

GENERAL SAFETY RULES AND EQUIPMENT

- a. All trucks and transporting equipment must pass through the Contamination Reduction Area to enter and exit the Exclusion Area (workarea).
- b. All truck drivers must keep all windows, doors, and air vents closed and sealed off during any and all work entrances into the Exclusion Area. These personnel may not exit their closed off vehicles unless they have been provided with and trained in air-purifying respiratory protection. Based on air monitoring data, driver may be required to wear respirators and dust goggles.
- c. All truck surfaces such as tires, wheels, and undercarriages, that have contracted the Exclusion Area soils must be properly decontaminated prior to exiting the Contamination Reduction Area.
- d. Decontamination protocol will be followed according to this Safety/Health Protocol and applicable EPA/OSHA guidelines.

DESIGNATION OF WORK AREAS AT THE SITE

The entire site will be divided into three areas:

1. Exclusion Area which is known to be or have a potential for becoming contaminated
2. The Contamination Reduction Area where decontamination of personnel and equipment exiting the Exclusion Area is performed

3. The Support Area which is not contaminated

The Exclusion Area (EA)

At the Ridge Avenue site the Exclusion Area shall include all areas between the creek and slope, the slope and the plateau to a line between the Coolidge and Miller residences.

The Contamination Reduction Area (CRA)

At the Ridge Avenue site, the Contamination Reduction Area will be located next to the shower trailer parked in Miller driveway and will be delineated by roped off area.

The Support Area (SA)

At the Ridge Avenue site the Support Area will be all areas outside the outside chain link fence not roped off. Exclusion area including the front yards and Ridge Avenue between in front of Miller and Coolidge residences. The roadway will be roped off or barricaded.

Changes in Designation of Work Areas

As work progresses on-site, the OSC may determine that an area previously designated an EA is no longer classified in that manner. It is not intended, however, to change the designation of the CRA since with may involve the movement of the decontamination facilities.

I have read and fully understand this Site/Safety Protocol for Soil Transporters and will abide by these guidelines and other amendments as set forth by the OSC or his designated site safety officer.

Name

Organization

Date

APPENDIX B

SIGNATURE PAGE

I have read and understand the safety procedures outlined
in this Site Safety/Health Protocol.

Name

Organization

Date

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WORK PLAN FOR
REMEDIAL ACTION AT THE
RIDGE AVENUE SITE
HUDSON, NEW HAMPSHIRE

CONTRACT NO. 68-01-6893
DELIVERY ORDER NO. 6893-01-001
OHM PROJECT #1775-E8

Prepared for:

Mr. Paul Groulx
Emergency Response Branch
USEPA Region I
Lexington, Massachusetts

Submitted by:

O.H. Materials Co.
April 18, 1984

Prepared by:

Patrick Hoopes
Patrick Hoopes, Response Manager

Approved by:

R.J. Onneck
Robert J. Onneck, Deputy Program Manager

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EXECUTIVE SUMMARY

This work plan outlines the various tasks necessary for implementation of Asbestos remedial action at the Ridge Avenue Site in Hudson, New Hampshire. In addition to the tasks, projected man-hours have been included along with estimated project cost.

Alternatives have also been developed that propose adjustments to the original work plan to facilitate project completion and satisfy schedule and budget requirements.

Estimated project cost under the proposed COE site plan is \$151,911. On-site adjustments to the scope of the work plan, involving changes in personnel and equipment, will require adjustment to the estimate. Possible changes to work have been identified where feasible. The estimate is based on a 6 day work week since weekly and monthly rental rate for equipment make weekend work financially advantageous.

1.0 INTRODUCTION

This document details the proposed remedial action at the Ridge Avenue Site in Hudson, New Hampshire. The basis for the site stabilization plan is a design and specification prepared by the Corps of Engineers for the USEPA Region I. Contractor tasks include site inspection, work and safety plan preparation, field operation and site restoration.

Section 2.0 outlines the various tasks in the work plan. Section 3.0 shows a tentative work schedule. Section 4.0 details the personnel and major equipment projections for each task. In addition, the total cost estimate includes minor equipment, materials, per diems, subcontracting, and miscellaneous expenses. Costs of all defined equipment are based on rates determined in the ERCS Contract. All equipment rates not defined within ERCS are figured at published prices.

2.0 WORK PLAN TASKS

The following are task breakdown involved in implementation of the remedial action at the Ridge Avenue Site in Hudson, New Hampshire.

- o Site Inspection
- o Prepare Health and Safety Plan
- o Development and Approval of Work Plan
- o Mobilization
- o Site setup and Preparation
- o Brush Clearing
- o Plateau Stabilization
- o Slope Stabilization
- o Landscaping
- o Adjoining Deposit Removal
- o Surveying
- o Air Monitoring
- o Project Closeout and Site Restoration
- o Demobilization
- o Final Report Preparation

[illegible]

4.0 TASK DESCRIPTION

This section details the work to be performed for each task. In addition, the anticipated time frame and projected staff hours for each task are included.

4.1 Site Inspection

This task, completed on April 3, 1984, involved a site inspection by the OSC, Response Manager, and a Foreman to formulate site setup and equipment requirements. The meeting was continued at U.S.E.P.A. Region I Laboratory.

Staff Hours

Response Manager	18.5 hours
Foreman, Level III	<u>6.0 hours</u>
TOTAL	24.5 hours

Equipment

Passenger Van	1 day plus mileage
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4.2 Prepare Health and Safety Plan

This task involves the generation of a site-specific Health and Safety Plan applicable over the entire project.

A draft Health and Safety Plan was delivered to the EPA on April 10, 1984, and after review, a final plan will be issued.

Staff Hours

Response Manager	8.0 hours
Safety Engineer	2.0 hours
Typist	<u>4.0 hours</u>
TOTAL	14.0 hours

4.3 Development and Approval of Work Plan

This task involves preparation of a detailed plan of action for the Ridge Avenue site including all on-site work, air monitoring and surveying. This plan will include alternatives to the Corps of Engineers design and cost estimates based on the outlined tasks.

A draft plan will be presented to the OSC by April 16, 1984.

Staff Hours

Response Manager	16.0 hours
Foreman, Level III	2.0 hours
Engineer/Estimator	8.0 hours
Field Clerk/Typist	<u>10.0 hours</u>
TOTAL	36.0 hours

4.4 Mobilization

This task will include prearrangements with utilities and on-site service and mobilization of men and equipment to Hudson, New Hampshire on April 23, 1984. Project control personnel, i.e. Response Manager, will mobilize from Findlay, Ohio. The rest of the personnel and equipment will be drawn from response network and local contractors.

Staff Hours

Response Manager	13.0 hours
Field Clerk	6.0 hours
Foreman, Level III	4.0 hours
Electrician, Level II	4.0 hours
Cleanup Technician, Level II	4.0 hours
3 - Cleanup Technicians, Level I	4.0 hours
3 - Truckdriver, Level I	<u>24.0 hours</u>
TOTAL	59.0 hours

Equipment

Office Trailer	1 day
Personnel Decon Trailer	1 day
Passenger Van	1 day
Passenger Sedan	1 day
Truck, 2 Ton	1 day
Loader, Wheel	1 day
Lowboy	1 day
3 - Over-the-Road Tractors	1 day

4.5 Site Setup and Preparation

This task includes setup of two trailer with power and telephones. As planned, the office trailer will be placed at the end of Coolidge's driveway and the personnel decontamination trailer will be placed in Miller's driveway. The site will be roped off; Exclusion Area, Contamination Reduction Area, and Support Area will be established. Overhead obstructions will be removed and underground piping identified.

Staff Hours

Foreman, Level III	12.0 hours
Electrician, Level II	16.0 hours
Response Manager	12.0 hours
Field Clerk	12.0 hours
Cleanup Technician, Level II	16.0 hours
3 - Cleanup Technicians, Level I	48.0 hours
Security	<u>48.0 hours</u>

TOTAL	164.0 hours
-------	-------------

Equipment

Decon Trailer	1 day
Office Trailer	1 day
Passenger Van	1 day
Truck, 2 Ton	1 day
Passenger Sedan	1 day
Loader, Wheel	1 day

4.6 Brush Cleaning

This task involves clearing any brush or trees off plateau. On the slope area, large dead trees will be cut up and pulled off the slope. Trees, less than 3 inches in diameter, or shrubs, less than 4 feet high, will be cut down to approximately 18 inches. All undergrowth will be left in place. Cuttings will be placed out of the work area on lower plateau at the toe of the slope to be covered during slope stabilization.

Staff Hours

Foreman, Level III	16.0 hours
Cleanup Technician, Level II	16.0 hours
3 - Cleanup Technicians, Level I	48.0 hours
Security Guard	<u>24.0 hours</u>

TOTAL	104.0 hours
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Equipment

Hand Saws
2 - Chain Saws
Gasoline Weed Eater

4.7 Plateau Stabilization

This task will be completed in two phases. First, approximately 400 to 500 tons of moist sandy gravel will be brought in by a local gravel company and spread on the plateau by loader or small dozer. Grade stakes will be placed to insure a uniform 12 inches of cover. Edges will be tapered to normal surface. This cover will allow the work on slope stabilization to begin. All uncovered asbestos will be kept moist. The trucks will not drive on uncovered areas.

After the slope is completed, the second phase of Plateau Stabilization will begin by bringing in 400 to 500 tons of sandy loam or topsoil. This final cover will be spread by loader with edges tapered to grade. Grade stakes will be utilized to insure uniform cover.

All trucks will be decontaminated before departing the site. Traffic control will be subcontracted, if required.

Staff Hours

Response Manager	40.0 hours
Field Clerk	40.0 hours
Foreman, Level III	30.0 hours
Operator, Level II	40.0 hours
Cleanup Technician, Level II	30.0 hours
3 - Cleanup Technician, Level I	90.0 hours
Security Guard	106.0 hours
TOTAL	376.0 hours

Equipment

Decon Trailer	4 days
Office Trailer	4 days
Loader/Dozer	4 days
Passenger Van	4 days
Passenger Sedan	4 days
Truck, 2 Ton	4 days

Subcontractors

Sand/Gravel/Topsoil
Traffic Control

4.8 Slope Stabilization

This task contains the most challenging requirements. The tow of the slope must be stabilized to prevent slope failure. 100 tons of blasted rock will be placed at the 250 foot long base of the slope. Drainage ditches, where the asbestos meets natural grade, will be filled with 5" stone to prevent erosion. Additionally, dump trucks will not be permitted near the edge to avoid slope failure.

Major trees (3 inches diameter or greater) and major shrubs (4 feet or taller) will have 5 inch stone placed around base up to half the size of their crown. A crane or grade-all will place the stone to minimize hand labor involved.

The slope will then be covered with minimum 700-800 tons of bank run gravel or sandy gravel to a depth of 12 to 15 inches. The crane/grade-all will place cover to minimize hand labor utilized to spread and level gravel. Additional gravel may be required to fill in tow.

Finally, a minimum of 400 tons of 5 inch stone will be placed by the crane/grade-all over the slope to a depth of 6 inches. The area will be smoothed by hand labor and grade stakes will be utilized where feasible. Edge areas will be tapered to natural grade. If 5 inch bank run stone will not hold to the slope, 5 inch shelf crush stone will have to be substituted.

Staff Hours

Response Manager	80.0 hours
Foreman, Level III	80.0 hours
2 - Operator, Level II	160.0 hours
Operator, Level I	80.0 hours
Cleanup Technician, Level II	80.0 hours
3 - Cleanup Technician	240.0 hours
Security	<u>196.0 hours</u>

TOTAL	916.0 hours
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Equipment

Decon Trailer	6 days
Office Trailer	6 days
Loader/Dozer	6 days
Crane/Grade-all	7 days
Passenger Van	6 days
Passenger Sedan	6 days
Truck, 2 Ton	6 days

Subcontract

Sand/Gravel/Stone
Traffic Control

4.9 Landscaping

Final grading will be performed to insure normal surface drainage away from local residence. Care will be taken along the foundation of Coolidge Residence to provide drainage away from foundation. Gravel and topsoil layers will be sloped away from foundation where fill materials comes in contact with the house.

The entire plateau will be seeded and fertilizer or hydro-seeded according to U.S. Department of Agriculture Standards and Specification for seeding for long-term cover on developing areas.

Staff Hours

Response Manager	10.0 hours
Foreman, Level III	20.0 hours
Field Clerk	10.0 hours
Cleanup Technician, Level III	20.0 hours
3 - Cleanup Technician, Level I	30.0 hours
Operator, Level II	20.0 hours
Security	<u>48.0 hours</u>
 TOTAL	 158.0 hours

Equipment

Office Trailer	2 days
Decon Trailer	2 days
Loader/Dozer	2 days
Passenger Van	2 days
Passenger Sedan	2 days
Truck, 2 Ton	2 days

Subcontractor

Hydro-seeder

4.10 Adjoining Deposit Removal

As directed by the OSC, small deposits of asbestos on adjoining property will be moved or covered during slope stabilization. This may require the loader or grade-all to operate below the slope. If excavation of an area is required, the deposit will be saturated with water and moved to the toe of the slope to be covered during slope stabilization. With the minor number of adjoining deposits, this work is included in task hours allotted to slope stabilization.

4.11 Surveying

At the completion of landscaping a local surveyor will be subcontracted to survey the final grade and produce a topographic plot of site.

Staff Hours

1 - Cleanup Technician, Level I	<u>10.0 hours</u>
TOTAL	10.0 hours

Subcontracting

Surveyor

4.12 Air Monitoring

During the entire project O.H. Materials Co., through a subcontracted laboratory, will monitor asbestos levels in work areas, around the site perimeter and in local residences as directed by the OSC.

Initially, Bendix personnel monitoring samplers will be placed each day on one Cleanup Technician, One Operator, and One Support Personnel. Additionally, 4 BGI high-volume air sampling pumps will sample the perimeter once each day. Initial and final swipe samples will be taken in residences as directed. All samples will be analyzed on-site by a portable contract microscope utilizing NIOSH P + CAM Standard Method #239 to determine total fiber count. The actual number and placement of samples will be determined on site by the OSC.

Subcontractor

Laboratory Analysis and Sampling

4.13 Project Closeout and Site Restoration

This task entails breakdown of site including utilities disconnect, equipment decontamination, and site cleanup.

Staff Hours

Response Manager	12.0 hours
Field Clerk	14.0 hours
Foreman, Level III	6.0 hours
Cleanup Technician, Level II	6.0 hours
3 - Cleanup Technician, Level I	38.0 hours
Security	<u>24.0 hours</u>
TOTAL	100.0 hours

Equipment

Decon Trailer	1 day
Office Trailer	1 day
Passenger Van	1 day
Passenger Sedan	1 day
Truck, 2 Ton	1 day

4.14 Demobilization

This involves return of all equipment and personnel to home base.

Staff Hours

Response Manager	8.0 hours
Field Clerk	8.0 hours
Foreman, Level III	4.0 hours
Cleanup Technician, Level II	4.0 hours
3 - Cleanup Technician, Level I	12.0 hours
3 - Truckdrivers	<u>24.0 hours</u>

TOTAL	60.0 hours
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Equipment

Decon Trailer	1 day
Office Trailer	1 day
Passenger Van	1 day
Passenger Sedan	1 day
Truck, 2 Ton	1 day
Loader, Wheel	1 day
Lowboy Trailer	1 day
3 Over-the-Road Tractors	1 day

4.15 Final Report Preparation

While a final report will be compiled on-site to the greatest extent possible, a summary of remedial action at this site will be prepared and delivered to the OSC within 5 working days after demobilization.

Staff Hours

Response Manager	10.0 hours
Field Clerk/Typist	<u>8.0 hours</u>

TOTAL	18.0 hours
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5.0 MODIFICATION ALTERNATIVES

This section presents the OSC with alternatives to the basic plan of work.

5.1 Toe Stabilization

The addition of tons of gravel and rock to the face of the slope increases the risk of slope failure. In the absence of slope stabilization data, OHM proposes the use of Gabbions (rock-baskets) at the toe of the slope to decrease the risk of slope failure. These Gabbions are 3'x3'x12' and would be pyramided 6 foot high along the 250 foot base of the slope. They would be filled with stone and wired together making a permanent foundation which allows drainage. The space between Gabbion and slope would be filled in with gravel. The estimated price of this alternative is \$14,949. and is recommended in the absence of soil data on slope stability.

Staff Hours

Response Manager	20.0 hours
Foreman, Level III	20.0 hours
Cleanup Technician, Level II	20.0 hours
3 Cleanup Technician, Level I	60.0 hours
Operator, Level II	20.0 hours
Operator, Level I	20.0 hours
Security	<u>28.0 hours</u>

TOTAL

188.0 hours

Equipment

Decon Trailer	2 days
Office Trailer	2 days
Passenger Sedan	2 days
Passenger Van	2 days
Truck, 2 Ton	2 days
Crane/Grade-all	2 days

Subcontracting

Stone
Gabbions

5.2 Topsoil

In place of the sandy loam available, the following combination may produce an improved topsoil mixture. Approximately 200 tons of silt and 200 tons of mulch can be spread on the plateau

in place of sandy loam and tilling equipment could be utilized to mix material. This material would cost approximately the same as sandy loam, but an estimated \$500. would be incurred for time to perform soil tilling.

5.3 Slope Seeding

To faster growth on the slope area, silt material could be placed on top of the 5 inch stone to fill in voids. The area would be seeded to improve stabilization. The cost is estimated to \$8,809.

Staff Hours

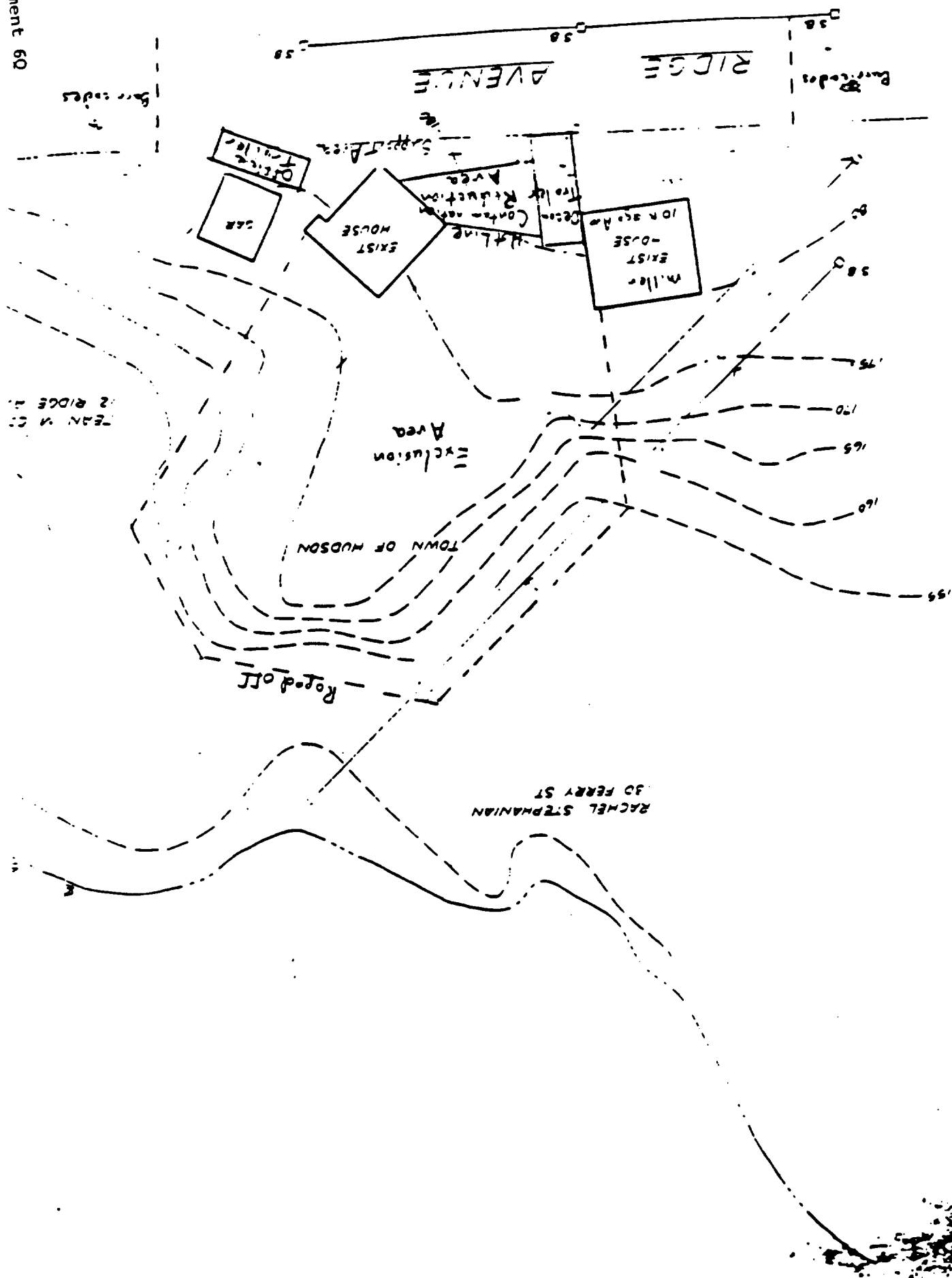
Response Manager	20.0 hours
Foreman, Level III	20.0 hours
Field Clerk	20.0 hours
Operator, Level II	20.0 hours
Operator, Level I	20.0 hours
Cleanup Technician, Level II	20.0 hours
3 Cleanup Technicians, Level I	<u>60.0 hours</u>
TOTAL	180.0 hours

Equipment

Decon Trailer	2 days
Office Trailer	2 days
Passenger Van	2 days
Passenger Sedan	2 days
Truck, 2 Ton	2 days
Crane/Grade-all	2 days

Subcontracting

Silt (100 tons)
Hydro-seeder



Cars Should be parked to the left of trailer.

1-413-562-9977

Collect Hudson Police

Hannon Security 883-5508

E.P.A. Paul Groulx and Doug Burns 617-223-7265 (Emergency)
Identify the job site as the Hudson job site. (Ridge Ave)
OH Materials Main Contractor Pat Hoopes (Emergency number)
Swiss Chalet Inn 883-5508 Room 337 or 340.

Guards should log everyone in that comes on the job site
(see the log book that is in the trailer) GREEN BOOK.

VEHICLES AND EQUIPMENT THAT IS COMING ON THE PROPERTY AND LEAVING
SHOULD BE LOGGED IN. IF THE EQUIPMENT IS LEAVING MAKE SURE YOU

GET A NAME AND IDENTIFICATION OF THE PERSON TAKING THE PROPERTY
SEE THE OTHER GREEN BOOK THAT IS MARKED VEHICLE AND EQUIPMENT.
GUARDS SHOULD WATCH THE TWO HOUSES WHO BELONG TO COOLIDGE AND
MILLER. THEY CAN NOT COME ON THE PROPERTY BUT ID THEM IF THEY
SHOULD COME IN AND GET PERMISSION FROM PAUL GROULX TO LET THEM
IN.

List of companies that will be on the job site:

OH Materials; EPA; Jet Line; ESA; and Roy Weston.

Guards should spend most of their time OUTSIDE AND A ROUND UP
TO BE MADE EVERY HOUR AND YOU MUST CHECK THE DOORS AT THE TWO
HOUSES. YOU DO NOT HAVE TO GO DOWN ALL THE WAY TO THE BACK.
MAKE SURE NOBODY IS IN THE BACK BROOK AREA. TELL THEM IT IS
A ~~HAZZARD~~ HAZZARD BACK THERE AND ASK THEM TO LEAVE, AS IT IS
PRIVATE PROPERTY.
IF THE PRESS SHOWS UP THEN DETAIN THEM AT THE TRAILER AND

GET A HOLD OF PAUL GROULX. KEEP THE NEIGHBORS FROM THE AREA
AND AGAIN BE POLITE AND TELL THEM IT SHOULD X-ADVISEABLE TO
STAY OUT OF THE AREA BECAUSE OF THE ~~HAZZARD~~ HAZZARD. ^{that is} you may get,
SCOT HEIZMAN IS ANOTHER OH PERSONEL THAT WILL BE IN CHARGE OF

CERCLA DAILY WORK ORDER

page 1 of _____

Work site RIDGE AVE, HUDSON, N.H.

DATE _____

Contractor O & H Materials Inc.

Work Order # _____

OSC Paul R. Groulx

Monitor: _____

Description of work to be performed: _____

Number of personnel authorized:

____ Supervisor	____ Foremen	____ Operator	____	____
____ Laborer	____	____	____	____

Equipment and Materials authorized:

Item	Quantity	Item	Quantity

Signature of OSC

Signature of Response Manager

ASBESTOS Inspection Form

- (1). Complainant: Jean Coolidge
- (2). Date of Complaint: 7/26/83 (3). Time of Complaint: 10:00 A.M.
- (4). Complainant's Address: 12 Ridge Avenue, Hudson, NH 03052
- (5). Telephone No.: (603) 881-8055 (work)
814-2435
- (6). Landowner's Name: Jean Coolidge Digital
- (7). Landowner's Address: 12 Ridge Avenue, Hudson, NH 03052
- (8). Telephone No.: (603) 888-3512 (home) ATTN: B J
- (9). Location of ASBESTOS (Directions): By Dairy Queen Restaurant on Ferry St.
(Rte. 111), turn onto Ridge Ave., 3rd house on left at elbow in street.
- (10). Agencies Notified: USEPA, NHOWM
- (11). Specific Complaint Received: Asbestiforms bulldozed and levelled on back yard
during Spring, 1983 (home owned less than 5 yrs. by Coolidge) and covered with 3
inches of loam. Some asbestos exposed.
- (12). Inspector's Name: Timothy W. Drew
- (13). Title: Waste Mgmt. Engineer (14). Agency: NHBHWM
- (15). Address: Office of Waste Management, Health & Welfare Bldg., Hazen Drive,
Concord, NH 03301 (16). Telephone No.: (603) 271-4664
- (17). Date of Inspection: 8/5/83 (18). Time of Inspection: 12:30 P.M.
- (19). Inspection Results: Asbestos board, table tops, and some of what looks like
baghouse dusts spread over one acre of her total 1.9 acre lot. Only 3 to 4 inches of
cover (max) in back yard; numerous areas dry and exposed. Periphery of yard is windrc
of asbestiforms almost totally exposed over ravine edge; 6 to 10 feet deep in places.
Photos taken. White dust precipitated on leaves of trees & bushes and on exterior
window sills.
- (20). Case Resolution: _____

C.C. TB
MH
8/24

INTERAGENCY AGREEMENT

(Please read instructions on page 3)

6/20/83

5/31/84

DW58930241-01-1

4. NAME AND ADDRESS OF EPA ORGANIZATION

U.S. Environmental Protection Agency (EPA)
Office of Solid Waste & Emergency Response
401 M Street, S.W.
Washington, D.C. 20460

5. NAME AND ADDRESS OF OTHER ORGANIZATION

Federal Emergency Management Agency (FEMA)
500 C Street, S.W.
Washington, D.C. 20472

6. PROJECT TITLE

Transfer Allocation for Temporary Relocation of Residents in the vicinity of the Nashua-Hudson Asbestos Sites in New Hampshire.

7. SCOPE OF WORK

This amendment to Interagency Agreement DW58930241-01-0 identifies the seventh site and adds an eighth site for immediate removal action. The eight sites are:

- | | |
|-------------------|----------------------|
| 1. Bursey site | 5. Sprague site |
| 2. Alukonis site | 6. Coulombe site |
| 3. Baker site | 7. Pointer site |
| 4. Matarazzo site | 8. Ridge Avenue site |

The amendment also extends the completion date from 12/31/83 to 5/31/84.

All other provisions remain unchanged.

8. SPECIAL PROVISIONS

This agreement may be terminated by either Agency upon _____ days advance written notice.

No change.

9. REPORTS

No change.

10. EPA PROJECT OFFICER Billie Perry	TELEPHONE FTS/475-8100	11. OTHER AGENCY PROJECT OFFICER Kathleen Brody	TELEPHONE FTS/287-0769
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ADDRESS Environmental Protection Agency (WH-548D) Office of Emergency & Remedial Response 401 M Street, S.W. Washington, D.C. 20460	ADDRESS Federal Emergency Management Agency 500 C Street, S.W. Washington, D.C. 20472
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12. EQUIPMENT-PROCUREMENT OF EQUIPMENT WITH EPA FUNDS IS:

☐ NOT AUTHORIZED ☒ AUTHORIZED ☐ SUBJECT TO THE FOLLOWING LIMITATIONS:

Equipment purchased will be inventoried in accordance with the supplying agency regulations. The supplying agency will be the accountable agency for all items of equipment costing \$25,000 or less. EPA will be the accountable agency for all items of equipment costing over \$25,000 or which form part of an integrated equipment system costing over \$25,000. An inventory of equipment purchased will be submitted by the supplying agency annually to EPA on the anniversary of this agreement. A final inventory of such equipment will be submitted to EPA within 30 days of completion of the work and services under this agreement. Title to equipment purchased shall be vested in EPA whose decision concerning the disposition of the equipment shall be final. The agencies shall mutually determine the procedure for inventorying, accounting, and disposing of jointly funded equipment.

13. EQUIPMENT TO BE FURNISHED OR ACQUIRED

As required. The purchase of equipment with EPA funds must have the prior approval of the EPA Project Officer.

14. ESTIMATED COST

A. TOTAL ESTIMATED PROJECT COST	\$ 35,000	B. AMOUNT TO BE FUNDED BY THIS AGREEMENT/AMENDMENT	\$ - 0 -
EPA SHARE	\$ 35,000	EPA SHARE	\$ - 0 -
OTHER AGENCY SHARE	\$ - 0 -	OTHER AGENCY SHARE	\$ - 0 -

15. METHOD OF PAYMENT

☐ ADVANCE ☐ REIMBURSEMENT ☒ ALLOCATION TRANSFER

* Unused funds remaining at completion of the work will be returned to EPA.

16. BILLING INSTRUCTIONS

Request for payment will be made by itemized SF-1081 submitted to.

No charge.

and will cite the following accounting information:

APPROPRIATION 66/20X2145	ACCOUNT NO. N/A	DCM NO. N/A	OBJECT CLASS N/A	TAG NO. DW58930241-01-1
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REQUEST FOR REIMBURSEMENT OF ACTUAL COSTS WILL BE ITEMIZED AND SUBMITTED:

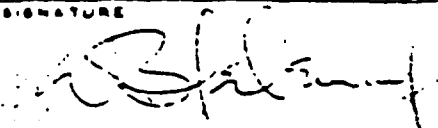
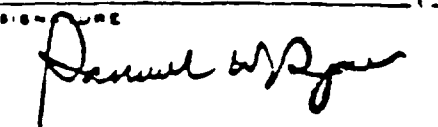
☐ MONTHLY ☐ QUARTERLY ☐ UPON COMPLETION OF WORK

N/A

17. AUTHORITY

CERCLA, Executive Order 12316, and the Economy Act of 1932, as amended (31USC1535).

18. APPROVALS

A. NAME AND TITLE OF AUTHORIZING OFFICIAL FOR EPA William N. Hedeman, Jr., Director Office of Emergency and Remedial Response	SIGNATURE 	DATE 4/15/84
B. NAME AND TITLE OF AUTHORIZING OFFICIAL FOR OTHER AGENCY Samuel W. Speck, Associate Director State and Local Programs and Support	SIGNATURE 	DATE 4/24/84



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAY 7 1981

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

MEMORANDUM

SUBJECT: Temporary Relocation at Nashua-Hudson

FROM: Billie Perry *Billie Perry*
Interagency Activities
Program Management Branch

TO: Ridge Avenue File

FEMA has confirmed that final costs for the temporary relocation of residents in the first phase (Bursey, Alukonis, Baker, Matarazzo, Sprague, Coulombe, and Pointer) are \$8141.84. A total of \$26,858.16 remains on the current IAG for further use for the Ridge Avenue Site.

Final costs for Ridge Avenue will be determined at the time of the close-out of IAG #DW58930241.

U.S. ENVIRONMENTAL PROTECTION AGENCY
INTERAGENCY AGREEMENT
(Please read instructions on Page 3)

1. EFFECTIVE DATE

6/20/83

2. COMPLETION DATE

12/31/83

3. AGREEMENT NO.

EW-E-1324
DW930241-01-0

4. NAME AND ADDRESS OF EPA ORGANIZATION

U.S. Environmental Protection Agency (EPA)
Office of Solid Waste and Emergency Response
401 M Street, S.W.
Washington, D.C. 20460

5. NAME AND ADDRESS OF OTHER ORGANIZATION

Federal Emergency Management Agency
500 C Street, S.W.
Washington, D.C. 20472

6. PROJECT TITLE

Transfer Allocation for Temporary Relocation of Residents in the Vicinity of the
Nashua-Hudson Asbestos Sites in New Hampshire.

7. SCOPE OF WORK

This agreement provides \$35,000 to the Federal Emergency Management Agency to cover obligations incurred in performance of its responsibilities under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and Executive Order 12316 in response to the presence of asbestos wastes on private property at several sites in Nashua and nearby Hudson, New Hampshire.

(See Attachment I)

8. SPECIAL PROVISIONS

This agreement may be terminated by mutual consent of both agencies.

1. FEMA may enter into a contract or cooperative agreement with the State to plan for and/or implement the temporary relocation.
2. Monthly, FEMA will provide EPA Headquarters with a status report on the relocation action and on technical assistance/planning activities. The report will contain a summary of progress during the reporting period and an accounting, by object class, of all funds obligated.

(see Attachment II)

9. REPORTS

FEMA will provide to EPA the reports described in "Special Provisions." These reports are due on the 15th day of each month beginning in July 1983. Copies of the reports must be sent to:

William N. Hedeman, Jr., Director
Office of Emergency & Remedial Response
U.S. Environmental Protection Agency
Washington, D.C. 20460

C. Morgan Kinghorn, Comptroller
Office of the Comptroller
U.S. Environmental Protection Agency
Washington, D.C. 20460

EPA PROJECT OFFICER Billie Perry	PHONE F.S. 382-2204	II. OTHER AGENCY PROJ OFFICER James Cruickshank	TELEPHONE FIS 287-0756
ADDRESS Environmental Protection Agency (WH-548D) Office of Emergency and Remedial Response 401 M Street, S.W. Washington, D.C. 20460		ADDRESS Federal Emergency Management Agency 500 C Street, S.W. Room 703 Washington, D.C. 20472	

EQUIPMENT-PROCUREMENT OF EQUIPMENT WITH EPA FUNDS IS:
☒ NOT AUTHORIZED ☐ AUTHORIZED ☐ SUBJECT TO THE FOLLOWING LIMITATIONS: Not applicable.

Equipment purchased will be inventoried in accordance with the supplying agency regulations. The supplying agency will be the accountable agency for all items of equipment costing \$25,000 or less. EPA will be the accountable agency for all items of equipment costing over \$25,000 or which form part of an integrated equipment system costing over \$25,000. An inventory of equipment purchased will be submitted by the supplying agency annually to EPA on the anniversary of this agreement. A final inventory of each equipment will be submitted to EPA within 30 days of completion of the work and services under this agreement. Title to equipment purchased shall be vested in EPA whose decision concerning the disposition of the equipment shall be final. The agencies shall mutually determine the procedure for inventorying, accounting, and disposing of jointly funded equipment.

EQUIPMENT TO BE FURNISHED OR ACQUIRED

ESTIMATED COST

A. TOTAL ESTIMATED PROJECT COST	\$ 35,000	B. AMOUNT TO BE FUNDED BY THIS AGREEMENT/AMENDMENT	\$ 35,000
EPA SHARE	\$ 35,000	EPA SHARE	\$ 35,000
OTHER AGENCY SHARE	\$ -0-	OTHER AGENCY SHARE	\$ -0-

METHOD OF PAYMENT
☐ ADVANCES ☐ REIMBURSEMENT ☒ ALLOCATION TRANSFER
Unexpended amounts remaining at completion of the work will be returned to EPA.

BILLING INSTRUCTIONS
Request for payment will be made by Form SF-1081 submitted to:

The Environmental Protection Agency shall transfer \$35,000 to the Federal Emergency Management Agency by means of an SF-1151 "Non-expenditure Transfer Authorization."

and will enter the following accounting information:


APPROPRIATION 68/20X8145	ACCOUNT NO. N/A	DCM NO. N/A	OBJECT CLASS N/A	ISS NO. DW930243-01-0
-----------------------------	--------------------	----------------	---------------------	--------------------------

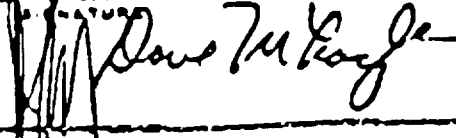
REQUEST FOR REIMBURSEMENT OF ACTUAL COSTS WILL BE ITEMIZED AND SUBMITTED: N/A

☐ MONTHLY ☐ QUARTERLY ☐ UPON COMPLETION OF WORK

AUTHORITY
CERCLA, Executive Order 12316, and the Economy Act of 1932, as amended.

APPROVALS

NAME AND TITLE OF AUTHORIZING OFFICIAL FOR EPA Lee Thomas Acting Assistant Administrator, Office of Solid Waste and Emergency Response	SIGNATURE 	DATE 6/7/83
--	---	----------------

NAME AND TITLE OF AUTHORIZING OFFICIAL FOR OTHER AGENCY Dave McLoughlin, Deputy Assoc. Director, State and Local Programs and Support	SIGNATURE 	DATE 6/1/83
--	---	----------------

Continuation Sheet - Attachment I

7. Scope of Work

Six sites are addressed in the immediate removal. A seventh site is being considered for removal action but further investigation is required before a removal is initiated. The six sites are:

1. Bursey site
2. Alukonis site
3. Baker site
4. Matarazzo site
5. Sprague site
6. Coulombe site

Funding will include:

1. Technical Assistance and Planning Activities: \$6,000

Planning activities undertaken by FEMA and/or the State to carry out the relocation action; and, as appropriate, technical assistance to the State in planning and implementing the relocation. Funding provided for planning and technical assistance will include, but is not limited to: administrative costs incurred by FEMA; contractor costs to support planning and technical assistance activities; and reimbursements to the State for services performed in planning and in support of relocation activities.

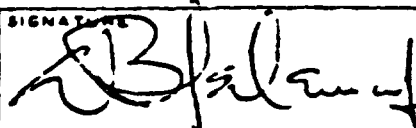
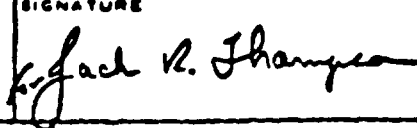
2. Temporary Relocation Activities: \$29,000

Implementation of the relocation of residents in Nashua and nearby Hudson, New Hampshire as determined necessary by FEMA. Relocation payments will be in accordance with FEMA policies and procedures for relocation.

Continuation Sheet - Attachment II

8. Special provisions

3. FEMA will retain detailed and accurate records for all costs reportable under this agreement. Such documentation may be required by EPA from time to time to support cost recovery actions and, as necessary, to support the budget process. Additionally, documentation must be available for audit or verification on request of the FEMA Inspector General.
4. Because all cash authority available under the Hazardous Substance Response Trust Fund is invested by the Department of Treasury, EPA will prepare SF-1151 non-expenditure transfer authorizations only to the extent needed to fund estimated outlays.
5. FEMA may obligate against the full value of this interagency agreement. EPA will transfer funds quarterly, or more often if required, via standard form 1151, based on outlay plan(s) to be prepared by FEMA which will become part of this agreement. This plan will enable EPA to meet the requirements of the Department of Treasury to divest only those monies required to meet necessary expenditures.
6. If actual expenditures exceed estimated expenditures as shown in the plan, EPA will transfer additional funds as required. A revised outlay plan will serve as authority to transfer additional funds via SF-1151. If actual outlays are significantly less than the estimated expenditures, EPA may postpone the next scheduled transfer or request the return of idle cash balances.
7. As the receiving Agency, FEMA will submit the Report on Budget Execution (Standard Form 133) to EPA within 15 calendar days after the close of each calendar month. The SF-133 report should be sent to:
- Robert C. Dodson
Special Reports and Analysis Branch
Financial Management Division
U.S. Environmental Protection Agency
Room 3617M PM-226
401 M Street, SW
Washington, D.C. 20460
8. If required and on written request from FEMA, EPA may amend this agreement to provide additional funding to carry out the activities in the Scope of Work.
9. FEMA and EPA agree that the temporary relocation of residents living in the vicinity of Nashua and nearby Hudson, New Hampshire is a necessary response action. The action is necessary as a precautionary measure during the period EPA is conducting the removal action to prevent immediate and significant risk of harm to human health.

10. EPA PROJECT OFFICER Billie Perry	TELEPHONE FTS/475-8100	11. OTHER AGENCY PROJECT OFFICER Noel Urban	TELEPHONE FTS/272-0216
ADDRESS Environmental Protection Agency (WH-548D) Office of Emergency & Remedial Response 401 M Street, SW Washington, D.C. 20460		ADDRESS U.S. Army Corps of Engineers (DAEN-ECE-B) 20 Massachusetts Avenue Washington, D.C. 20314	
12. EQUIPMENT-PROCUREMENT OF EQUIPMENT WITH EPA FUNDS IS: <input checked="" type="checkbox"/> NOT AUTHORIZED <input type="checkbox"/> AUTHORIZED <input type="checkbox"/> SUBJECT TO THE FOLLOWING LIMITATIONS: Equipment purchased will be inventoried in accordance with the supplying agency regulations. The supplying agency will be the accountable agency for all items of equipment costing \$25,000 or less. EPA will be the accountable agency for all items of equipment costing over \$25,000 or which form part of an integrated equipment system costing over \$25,000. An inventory of equipment purchased will be submitted by the supplying agency annually to EPA on the anniversary of this agreement. A final inventory of such equipment will be submitted to EPA within 30 days of completion of the work and services under this agreement. Title to equipment purchased shall be vested in EPA whose decision concerning the disposition of the equipment shall be final. The agencies shall mutually determine the procedure for inventorying, accounting, and disposing of jointly funded equipment.			
13. EQUIPMENT TO BE FURNISHED OR ACQUIRED None			
14. ESTIMATED COST			
a. TOTAL ESTIMATED PROJECT COST \$ 15,000		b. AMOUNT TO BE FUNDED BY THIS AGREEMENT/AMENDMENT \$ 15,000	
EPA SHARE \$ 15,000		EPA SHARE \$ 15,000	
OTHER AGENCY SHARE \$ -0-		OTHER AGENCY SHARE \$ -0-	
15. METHOD OF PAYMENT <input type="checkbox"/> ADVANCE* <input checked="" type="checkbox"/> REIMBURSEMENT <input type="checkbox"/> ALLOCATION TRANSFER *Unexpended amounts remaining at completion of the work will be returned to EPA.			
16. BILLING INSTRUCTIONS: Request for payment will be made by Itemized SF-1081 submitted to: Environmental Protection Agency Financial Management Division Room 214 26 West St. Clair Street Cincinnati, Ohio 45268			
and will cite the following accounting information:			
APPROPRIATION 68/20X8145	ACCOUNT NO. 4TFA721F59	DCN NO. 22C026	OBJECT CLASS 25.70
		IAS NO. W96930784-01-0	
REQUEST FOR REIMBURSEMENT OF ACTUAL COSTS WILL BE ITEMIZED AND SUBMITTED: <input checked="" type="checkbox"/> MONTHLY <input type="checkbox"/> QUARTERLY <input type="checkbox"/> UPON COMPLETION OF WORK			
17. AUTHORITY CERCLA, Executive Order 12316 and the Economy Act of 1932, as amended (31 USC 1535).			
18. APPROVALS			
a. NAME AND TITLE OF AUTHORIZING OFFICIAL FOR EPA William N. Hedeman, Jr., Director Office of Emergency & Remedial Response		SIGNATURE 	DATE 4/11/84
b. NAME AND TITLE OF AUTHORIZING OFFICIAL FOR OTHER AGENCY WILLIAM N. MCCORMICK, JR. Chief, Engineering Division Directorate of Engineering & Construction		SIGNATURE 	DATE 4-18-84

INTERAGENCY AGREEMENT
(Please read instructions on page 3)

4/23/84

10/23/84

DW96930784-01-0

A. NAME AND ADDRESS OF EPA ORGANIZATION

U.S. Environmental Protection Agency (EPA)
Office of Solid Waste & Emergency Response
401 M Street, S.W.
Washington, D.C. 20460

B. NAME AND ADDRESS OF OTHER ORGANIZATION

Department of Defense
U.S. Army Corps of Engineers
20 Massachusetts Avenue
Washington, D.C. 20314

C. PROJECT TITLE

Technical Assistance at the Ridge Avenue Site, Hudson, NH.

D. SCOPE OF WORK

This IAG provides \$15,000 to the U.S. Army Corps of Engineers (USACE) for technical assistance to EPA at Ridge Avenue site in Hudson, NH. These funds are provided for technical assistance during the capping of the site.

The Ridge Avenue site is an asbestos dump site which was contaminated by waste deposited by the Johns-Manville Company located in Nashua, NH. The site is 1/3 acre in area and about 20 feet in depth and contains approximately 120,000 feet of waste.

The technical assistance activities include:

- (1) Providing technical assistance and recommendations to EPA's On-Scene Coordinator (OSC) regarding the technical complexity of design and construction for the soil cover.
- (2) Providing technical assistance to EPA during site covering and establishing ground cover to prevent future erosion, proper soil cover under freezing conditions, monitoring requirements, and maintenance.

E. SPECIAL PROVISIONS

This agreement may be terminated by either Agency upon 30 days advance written notice.

The appropriate USACE office shall retain detailed and accurate records, by site, of the travel expenditures, personnel hours and all other costs for which reimbursement is requested under this agreement. Such documentation may be required by EPA from time to time to form the basis for CERCLA cost recovery actions or other litigation. Additionally, documentation must be available for audit or verification on request of the Inspector General.

Reimbursement of funds is contingent upon receipt and approval by EPA of the financial and management reports outlined in Block 9.

F. REPORTS

The Corps of Engineers will provide the EPA with the following reports:

1. A final report which will be submitted to the EPA Regional and Headquarters Technical Project Officers describing the removal operations: costs, problems, and operating procedures.
2. Biweekly progress reports on removal activities.
3. Monthly report on funds obligated.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION I

J. F. KENNEDY FEDERAL BUILDING, BOSTON, MASSACHUSETTS 02203

Certified Mail
Return Receipt Requested

March 23, 1984

S. Wyatt McCallie, Esq.
Senior Attorney
Johns-Manville Sales Corporation
Ken Caryl Ranch
P.O. Box 5108
Denver, CO 80217

Re: Asbestos Waste Site
Ridge Avenue
Hudson, New Hampshire

Dear Mr. McCallie:

This letter is to notify you of liability which your company may have incurred in connection with an asbestos waste site located on Ridge Avenue in Hudson, New Hampshire and currently owned by the Town of Hudson, 15 Library Road, Hudson, New Hampshire, Mr. and Mrs. Ernest Miller, 10 Ridge Avenue, Hudson, New Hampshire, Ms. Agnes Harwood, 6 Ridge Avenue, Hudson, New Hampshire, Mr. and Mrs. Harold Holt, 56 Kimball Road, Hudson, New Hampshire, and Ms. Jean Coolidge, 10 Ridge Avenue, Hudson, New Hampshire. This site is not part of the pending civil action, U.S. v. Johns-Manville, et al., Civil Action No. 81-299-D.

The United States Environmental Protection Agency (EPA) has determined that there are releases and threatened releases of hazardous substances at the above-referenced site (the site), and is considering spending public funds to further investigate and control these releases. This action will be taken by EPA pursuant to the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), 42 U.S.C. § 9601 et seq., unless EPA determines that such action will be done properly by a responsible party. A responsible party may be liable under CERCLA for public funds expended to take necessary corrective action at the site, including investigation, planning, clean-up of the site, and enforcement.

EPA believes that your company may be a responsible party for the releases and threatened releases of hazardous substances, pollutants and contaminants. Therefore, before the government undertakes necessary action at the site, we desire to know if your company will voluntarily perform the work required to abate any releases or threatened releases of hazardous substances, pollutants and contaminants from the site.

EPA is focusing on immediate removal response actions necessary to stabilize the release and threatened release and public exposure to the asbestos waste in accord with the provisions of the National Contingency Plan, 40 C.F.R. § 300.65. These measures consist of the following:

1. Clean the site and remove debris as required.
2. Shape and grade the site to an appropriate grade for the following two steps.
3. Provide an earth cover of as much as thirty inches.
4. Seed and fertilize the earth cover in order to hold the cover and prevent soil erosion.
5. Utilize necessary safety procedures in order to protect on-site workers and the public from exposure to airborne asbestos during the response action.

Please notify EPA within seven (7) working days of receipt of this letter as to whether your company will voluntarily undertake these activities and provide a plan and schedule for implementing this work. If you do not respond within that time, EPA will assume that Johns-Manville has declined to undertake these voluntary measures. If you so decline, EPA may undertake the necessary action. As noted above, responsible parties may be liable for money expended by the government to take these immediate removal actions.

Your response should be made to:

Philip Boxell, Esq.
Assistant Regional Counsel
U.S. Environmental Protection Agency
JFK Federal Building, 22nd Fl.
Boston, MA 02203
(617) 223-0400

Sincerely yours,


Merrill S. Hohman, Director
Waste Management Division

cc: Regional Counsel, Region I
G. Dana Bisbee, Assistant Attorney General, State
of New Hampshire
Town of Hudson
Mr. & Mrs. Miller
Ms. Harwood
Mr. & Mrs. Holt
Ms. Coolidge

SUMMARY

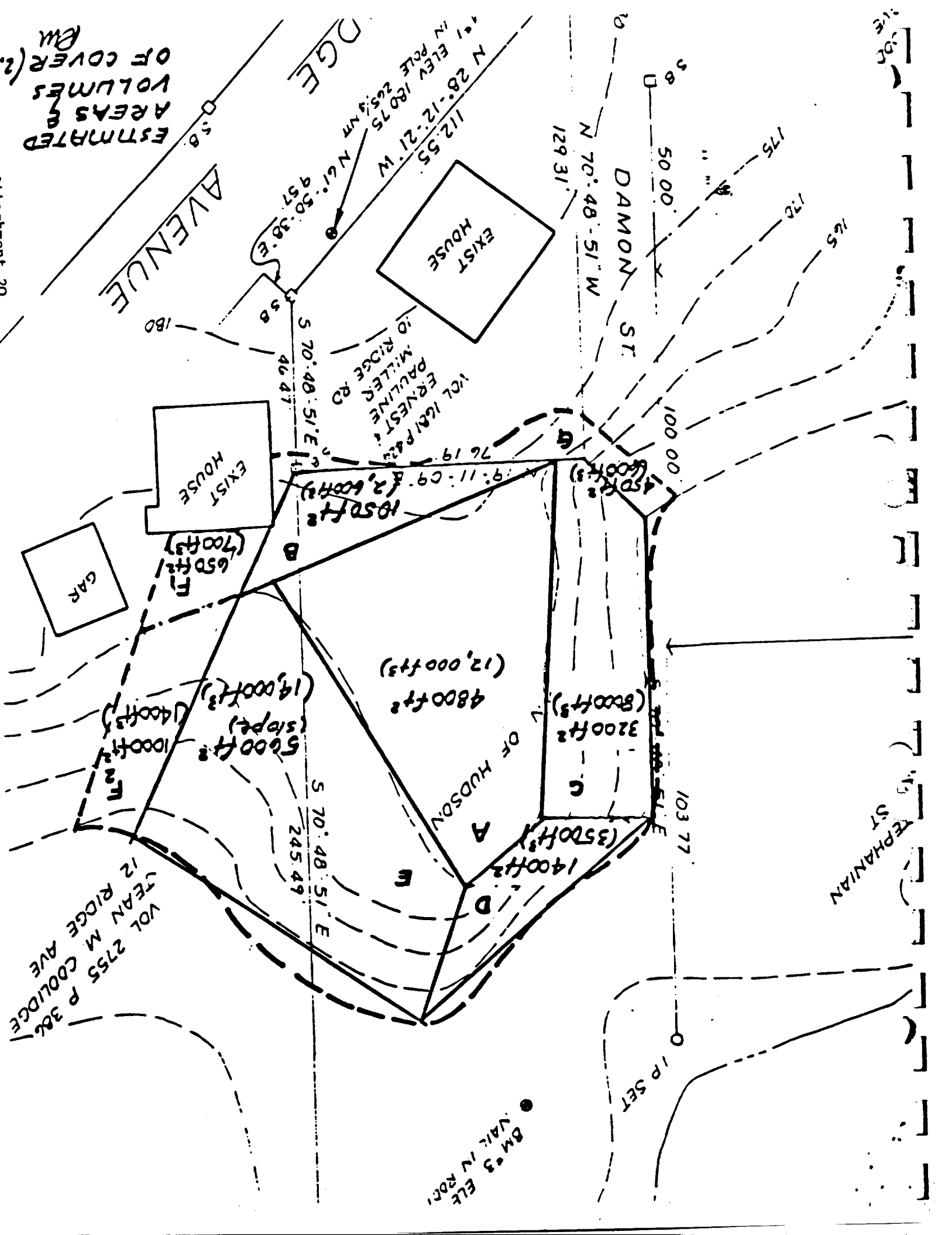
CALCULATING VOLUME OF ASBESTOS DEPOSIT

$$\begin{aligned} \text{Base (Horiz)} &= 62 \times 225 \text{ ft}^2 = 13,950 \\ \Sigma \text{Area} &= 13,950 \\ \Sigma \text{Volume} &= 31,200 \\ &= 14,000 \text{ ft}^3 \\ &= 119,700 \\ \Sigma \text{Weight} &= 120,000 \times \frac{1 \text{ ton}}{20 \text{ ft}^3} = 6,000 \text{ tons} \end{aligned}$$

Element No./ Avg. Depth of 15'x15' square area (225 ft²):

#	ft.	#	ft.	#	ft.	#	ft.
1	4.50	16	10.75	31	6.00	46	10.00
2	3.75	17	16.10	32	1.40	47	6.50
3	4.50	18	17.75	33	4.25	48	4.60
4	9.75	19	16.85	34	12.00	49	1.00
5	12.50	20	14.75	35	16.50	50	3.25
6	10.00	21	11.40	36	16.75	51	7.50
7	5.75	22	5.15	37	14.75	52	8.00
8	6.40	23	0.75	38	11.25	53	6.25
9	12.60	24	3.75	39	8.15	54	3.90
10	16.75	25	9.25	40	4.00	55	2.10
11	16.90	26	16.25	41	0.60	56	0.85
12	14.40	27	17.10	42	4.50	57	1.00
13	10.40	28	16.40	43	11.50	58	2.00
14	3.75	29	14.00	44	14.25	59	2.25
15	3.40	30	11.00	45	13.00	60	1.75
$\Sigma = 135.35$		$\Sigma = 181.25$		$\Sigma = 138.90$		61	0.60
						62	0.10
						$\Sigma = 61.65$	

Avg. Depth: 9.23 ft	12.83	9.26	3.63
Horiz. Area: 3375 ft ²	3375	3375	3325



AREAS & VOLUMES OF COVER REQUIRED (CALCULATION)

Area $90' \times 53' = 4,800 \text{ ft}^2$; Volume $4800 \times 2.5 = 12,000 \text{ ft}^3$

Area $\frac{1}{2} \times 90' \times 23' = 1,050 \text{ ft}^2$; Volume $1050 \times 2.5 = \underline{2,600 \text{ ft}^3}$

TOTALS { 5850 ft² - - - - - 14,600 ft²
(0.14 acres) ~ (730 tons @ 100 lb/ft²)

Area $90' \times 35' = 3,200 \text{ ft}^2$; Vol. $= 3200 \times 2.5 = 8,000 \text{ ft}^3$

$$A_{MA} 53' \times 25' = 1,400 \text{ ft}^2 ; \quad Vol. = 1400 \times 2.5 = 3,500 \text{ ft}^3$$
$$\text{Area } 93' \times 60' = \underline{5,600 \text{ ft}^2}; \quad \text{Vol.} = 5600 \times 2.5 = \underline{14,000 \text{ ft}^3}$$

TOTALS { $10,200 \text{ ft}^2$ $25,500 \text{ ft}^2$
(0.24 acres) $\sim (1275 \text{ tons @ } 100 \text{ lb/ft}^2)$

$$A_{\text{base}} = 87' \times 19' = 1,650 \text{ ft}^2; \quad Vol. = \frac{1}{2} \times 1,650 \times 2.5 = 2,100 \text{ ft}^3$$
$$\text{Area } 45' \times 10' = \underline{450 \text{ ft}^2}; \quad \text{Vol.} = \frac{1}{2} \times 450 \times 2.5 = \underline{562.5 \text{ ft}^3}$$

PAH
1/10/84

AREA AND VOLUME OF COVER MATERIALS REQUIRED (APPROX.)

<u>Plateau :</u>	<u>AREA</u>	<u>VOLUME</u>
A.	4800 ft ²	12,000 ft ³
B.	<u>1050</u>	<u>2,600</u>
	5850 ft ²	14,600 ft ³
	(0.14 acres)	~ (730 tons @ 100 lb/ft ³)

<u>Slopes :</u>		
C.	3200 ft ²	8,000 ft ³
D.	1400	3,500
E.	<u>5600</u>	<u>14,000</u>
	10,200 ft ²	25,500 ft ³
	(0.24 acres)	~ (1275 tons @ 100 lb/ft ³)

<u>Edges :</u>		
F ₁ + F ₂ :	1650 ft ²	2,100 ft ³
G.	<u>450</u>	<u>600</u>
	2,100 ft ²	2,700 ft ³
	(0.05 acres)	~ (135 tons @ 100 lb/ft ³)

approx. $\Sigma \approx 2140$ tons (~ 215 truck loads). ✓

RM
1/10/84

AREA AND VOLUME OF COVER MATERIALS REQUIRED (DETAILED)

	AREA	VOLUME (2.5ft thick)
<u>PLATEAU</u> : A.	9800 ft ²	12,000 ft ³
B.	<u>1050</u>	<u>2,600</u>
TOTALS:	5850 ft ²	14,600 ft ³

(0.14 acres)

12" sandy gravel (max. 3")

$$= 40\% \times 14,600 = 5850 \text{ ft}^3$$

@ 120 lb/ft³ (moist)

$$= 700,000 \text{ lb} = \underline{350 \text{ tons.}}$$

18" loam (sandy)

$$= 60\% \times 14,600 = 8750 \text{ ft}^3$$

@ 90 lb/ft³ (moist)

$$= 800,000 \text{ lb} = \underline{400 \text{ tons.}}$$

<u>SLOPES</u> : C.	3200 ft ²	8,000 ft ³
D.	1400	3,500
E.	<u>5600</u>	<u>14,000</u>
TOTALS:	10,200 ft ²	25,500 ft ³

(0.24 acres)

15" bank-run sandy gravel (max. 3")

$$= 50\% \times 25,500 = 12,750 \text{ ft}^3$$

COVER MATERIALS (cont'd)
(page 2)

<u>AREA</u>	<u>VOLUME</u>
<u>SLOPES :</u> C, D, E: (cont'd)	<u>6" of stone (5" dia) surface</u> $= 20\% \times 25,500 = 5100 \text{ ft}^3$ <u>@ 100 lb/ft³ (dry)</u> $= 500,000 \text{ lb} = 250 \text{ tons}$ Add 50 tons for placing around trees : <u>$= 300 \text{ tons}$</u> <u>(total)</u>
<u>EDGES :</u> F ₁ (Plateau) 650 ft ²	700 ft ³ (total). 12"±0" <u>sandy gravel</u> : <u>10 ton.</u> 18"±0" <u>sandy loam</u> : <u>20 ton.</u>
(slope) F ₂ 1000 ft ² G. <u>450 ft²</u> 1450 ft ²	1400 ft ³ <u>600 ft³</u> 2000 ft ³
(0.05 acres)	15"±0" <u>sandy gravel</u> : <u>50 ton.</u> (max 3")

COVER MATERIALS (cont'd) (page 3)

SUMMARY

a. moist sandy gravel (max. 5") @ 120 lb/ft³ :

12" on plateau (A,B) = 350 tons

12"-0" on F₁ edge = 10 tons

15"-0" on F₂, & edges = 50 tons

410 tons (Total)

b. moist sandy gravel (max. 10") @ 120 lb/ft³ :

15" on slopes (C,D,E) = 750 tons (Total)

c. moist sandy loam @ 90 lb/ft³ :

18" on plateau (A,B) = 400 tons

18"-0" on F₁ edge = 20 tons

420 tons (Total)

d. dry 5" dia. stone

6" on slopes (C,D,E) = 250 tons

(+ around trees) = 50 tons

6"-0" on F₂, & = 50 tons

350 tons (Total)

Overall Σ = 1930 tons (~200 truck loads) + ADD 15% for roughness = 2215 tons

PAH
1/10/84

AREA AND VOLUME OF COVER MATERIALS REQUIRED (APPROX.)

<u>Plateau :</u>	<u>AREA</u>	<u>VOLUME</u>
A.	4800 ft ²	12,000 ft ³
B.	<u>1050</u>	<u>2,600</u>
	5850 ft ²	14,600 ft ³
	(0.14 acres)	~ (730 tons @ 100 lb/ft ³)

<u>Slopes :</u>		
C.	3200 ft ²	8,000 ft ³
D.	1400	3,500
E.	<u>5600</u>	<u>14,000</u>
	10,200 ft ²	25,500 ft ³
	(0.24 acres)	~ (1275 tons @ 100 lb/ft ³)

<u>Edges :</u>		
F ₁ + F ₂ :	1650 ft ²	2,100 ft ³
G.	<u>450</u>	<u>600</u>
	2,100 ft ²	2,700 ft ³
	(0.05 acres)	~ (135 tons @ 100 lb/ft ³)

approx. $\Sigma \approx 2140$ tons (~ 215 truck loads). ✓



DEPARTMENT OF THE ARMY
COLD REGIONS RESEARCH AND ENGINEERING LABORATORY, CORPS OF ENGINEERS
HANOVER, NEW HAMPSHIRE 03755

April 2, 1984

Paul R. Groulx
On-Scene Coordinator
U.S. EPA, Region 1
60 Westview Street
Lexington, Massachusetts 02173

Dear Paul:

Here are the two memoranda I mentioned, in which the 30-inch standard depth for frost protection of asbestos waste against freezing was first set out.

Notice that between June 1983 and September 1983 Alex Iskandar had found that not 12 inches but 18 inches of topsoil was advisable.

Sincerely,

Dick

Richard W. McGaw, P.E.
Research Civil Engineer
Applied Research Branch

Enclosure

AC 440000000000

REFERENCES

A total of 12 volumes of supportive materials pertaining to the Ridge Ave. site Hudson, New Hampshire, has been assembled by the OSC. This material is available in the EPA Regional Office, Oil and Hazardous Materials Spill Section, 60 Westview Street, Lexington, Massachusetts.

Correspondence	Volume I	10/04/83-05/11/84
Reference-Reports	Volume II	07/26/83-05/31/84
Security Logs	Volume III	Personnel
Security Logs	Volume IV	Vehicle-Equipment
Photographic Documentation	Volume V	A. Photographs
		B. Slides
Maps	Volume VI	
TAT Field Notes (Xerox)	Volume VII	
Daily Reports	Volume VIII	
Newspaper Articles	Volume IX	
Miscellaneous Reports	Volume X	A. Seeding Specs.
		B. Asbestos Abstract
O. H. Contract	Volume XI	
O. H. Daily Work Sheets	Volume XII	

RIDGE AVE - HUDSON, NEW HAMPSHIRE
DIRECTORY OF PERSONNEL INVOLVED WITH CLEANUP

Donovon Appraisal Services
Independent Fee Appraiser
7 Auburn Street
P.O. Box 3675
Nashua, N.H. 03061
Richard J. Donovan
(603) 889-0884
(603) 622-5900

Green-Key Horticultural
Professional Tree & Landscaping Service
Edward J. Grenke (Certified Arborist)
Spraying - N.H.P.C. 96
(603) 882-3028

Richard V. Grillo, MS (Industrial Hygienist)
ESA Laboratories, Inc.
45 Wiggins Ave.
Bedford, MA 01730
(617) 275-0100
Telex No. 923344

U.S. Environmental Protection Agency
Surveillance & Analysis Division - Region I
60 Westview St.
Lexington, MA 02173
(617) 861-6700
Paul R. Groulx, Environmental Scientist -
Oil & Hazardous Material Section

Hannon Investigation & Security, Inc.
44 Verona St.
Westfield, MA 01085
(413) 562-9977
(413) 568-5567
Stephen R. Perry

Lannan Corp.
General Contractor & Excavators - Site Work - Equipment Rentals
Floyd Road, Box 670
Derry, New Hampshire
(603) 432-2707
(603) 434-0198

Hudson Sand & Gravel., Inc.
85 Greeley Street
Hudson, NH 03051
(603) 889-6174
Tony Da Costa, Superintendent

RIDGE AVE - HUDSON, NEW HAMPSHIRE
DIRECTORY OF PERSONNEL INVOLVED WITH CLEANUP (cont'd)

Maynard & Paquette, Inc.
consulting Engineers & Land Surveyors
Gary L. Webster (Field Coordinator)
23 E. Pearl Street
Nashua, NH 03060
(603) 883-8384
C. Joziates
(603) 883-1258

O.H. Material Co.
P.O. Box 551
Findlay, Ohio 45839-0551
(419) 423-3526
800-537-9540
800-537-5660 (in Ohio)
Robert Bourne (Senior Project Control Technician)
Scott Hiezman
Pat Hoope
Alan Blanchard
Walter Youngblood

Reda's Construction Company, Inc.
Dick Reda
(603) 882-3637

WNDS TV 50
TV-50 Place
Derry, NH 03038
(603) 434-8850
Dale Rutstein

U.S. Dept. of Health & Human Services
J.F.K. Building
Boston, MA 02203
(617) 223-1948
C D C Regional Superfund Representative
John E. Figler

RIDGE AVE - HUDSON, NEW HAMPSHIRE
DIRECTORY OF PERSONNEL INVOLVED WITH CLEANUP (cont'd)

State of New Hampshire
Bureau of Hazardous Waste Management
Department of Health & Welfare
Division of Public Health Services
Office of Waste Management
Hazen Drive
Concord, NH 03301
(603) 271-4609: Brian C Strhm, Ph.D.
Assistant Director of Public Health Services

(603) 271-4664(w): Brook Dupee
(603) 664-2928(h): Program Manager/CERCLA Coordinator

(603) 271-4664: Pam Sprague, Waste Management Engineer
Bureau of Solid Waste Management

State of New Hampshire
Office of the Governor
N.H. Civil Defense Agency
1 Airport Road
Concord, NH 03301
(603) 271-2231
Robert Ober, Office of Disaster (603 883-4588 Res.)

Town of Hudson, NH
12 School Street
Hudson, NH 03051
(603) 889-1891
Denis M. Boisvert, EIT, Civil Engineer
Robert A. Perreault, Jr., P.E., Town Engineer
Francene Parkhurst, Selectman

Town of Hudson, NH
Highway Department
12 School Street
Hudson, NH 03051
(603) 889-1276
Al Hogan, Road Agent

State of New Hampshire
Air Resources Agency
Health and Welfare Building
Haven Drive
Concord, NH 03301
(603) 271-4582
Gerald Grimard

RIDGE AVE - HUDSON, NEW HAMPSHIRE
DIRECTORY OF PERSONNEL INVOLVED WITH CLEANUP (cont'd)

Department of the Army
Cold Region Research & Engineering Laboratory
Corps of Engineers
Hanover, NH 03755
(603) 646-4100
Richard W. McGaw, Research Civil Engineer
I. K. Iskandar, Research Chemist, Earth Science Branch

Debbie Dalton
U.S. EPA Headquarters
Enforcement Division
(202) 382-7788

Jeff Lybarger
U.S. Department of Health & Human Services
Public Health Service
Centers for Disease Control - Chamblee
Center for Environmental Health
1600 Clifton Road
Atlanta, GA 30333
(404) 452-4161
FTS: 8 236-4161

Roy F. Weston, Inc.
Spill Prevention & Emergency Response Division
111 South Bedford Street, Suite 202
Burlington, MA 01803
(617) 229-6430
Mark S. Hall
Doug Burns

Federal Emergency Management Agency
John W. McCormack
Post Office & Courthouse
Boston, MA 02109
(617) 223-4741
David M. Sparks, Regional Director - Region I
James F. Silk, Emergency Management Officer
Domenic A. Piso



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION I

60 WESTVIEW STREET, LEXINGTON, MASSACHUSETTS 02173

June 1, 1984

Captain Charles C. Corbett
U. S. Coast Guard (DOT)
National Response Center (G-WEP-6/73)
400 Seventh Street, S.W.
Washington, D.C. 20590

RECEIVED

JUN - 6 1984

OFFICE OF REGION I
ENVIRONMENTAL PROTECTION AGENCY

Dear Captain Corbett:

Attached please find the On-Scene Coordinator's report for the cleanup activities conducted at the Johns-Manville Hazardous Waste Site at Ridge Avenue in Hudson, New Hampshire.

Briefly, EPA filed a civil action in Federal District Court in June, 1981, and has since been involved in long and difficult negotiations with Johns-Manville and the landowners over who should cover the asbestos laden areas, how much cover is necessary to provide adequate protection, and who should remain responsible for the sites after they are covered.

Because Johns-Manville filed for Chapter 11 bankruptcy on August 26, 1982, and since there is little prospect that Johns-Manville was willing, ready or able to cover these sites in the near future, Region I decided to investigate the use of Federal monies available under Superfund to pay for covering the site. Such an action would essentially convert this complicated civil action for equitable relief into a cost recovery action.


In May 1984, the U. S. EPA initiated a Federal response action at the Ridge Avenue site. This action commenced on May 23, 1984, when the site was declared eligible for CERCLA funding. A total of \$455,000.00 was appropriated under this first phase of the emergency response. Action was completed in June 1984. A total of approximately \$132,038.48 was obligated during this emergency action utilizing CERCLA funding.

The U. S. Army Corps of Engineers, Cold Weather Regions Research and Engineering Laboratory, the U. S. Department of Health and Human Services, the Center For Disease Control, and the Federal Emergency Management Agency, combined with the cooperation of the State of New Hampshire personnel on-scene, greatly assisted us in responding to this incident.

This report is being sent to you in accordance with 40 CFR Part 300.56 of the National Oil and Hazardous and Substances Contingency Plan, which states... "the OSC shall submit the to RRT a complete report on the response operation and the actions taken. The OSC shall at the same time send a copy of the report to the NRT. The RRT shall review the OSC's report and prepare an endorsement to the NRT for review.. This shall be accomplished within 30 days after the report has been received..."

Should you have any questions in regards to this report, please contact me at (617) 861-6700, ext. 227.

Sincerely,



Paul R. Groulx
On-Scene Coordinator
Oil and Hazardous Materials Section

cc: Henry Van Cleave, U. S. Environmental Protection Agency
Emergency Response Division, Washington, DC
Merrill Hohman, Region I, Superfund Coordinator, Boston, MA
Susan Sladek, Office of Congressional Affairs, Boston, MA
Phil Boxell, Office of Regional Council, Boston, MA
Patrick Flynn, Contracts Office, Washington, DC
Heather, M. Ford, Hazardous Waste Management Division,
Boston, MA
Brook Dupee, State of New Hampshire, Superfund Coordinator,
Concord, NH

Identical letter and enclosure were sent to the following:

Capt. Charles C. Corbett, U. S. Coast Guard, National Response Center
Region I, Inland Regional Response Team Members:

Edward V. Fitzpatrick, Chairman, U. S. Environmental Protection Agency
Captain R. B. Eldrige, Co-Chairman, First U. S. Coast Guard District
James Jordan, U. S. Department of Agriculture
Kevin McCarthy, U. S. Department of Commerce
John Caffrey, U. S. Army Corps of Engineers
Ronald Behmy, U. S. Department of Energy
Albert Gammal, Federal Emergency Management Administration
Arnold M. Julin, U. S. Department of Interior
Barker Ciroonian, U. S. Department of Labor
R. Tucker Scully, U. S. Department of State
Wesley Staub, NIOSH, PHS, DHHS
Michael Hathaway, U.S. Forest Service
Albert Kachic, National Weather Service (Eastern Region)
George Steele, First U. S. Army
Russell Nylander, State of New Hampshire

SUBCHAPTER J—SUPERFUND PROGRAMS

PART 300—NATIONAL OIL AND HAZARDOUS SUBSTANCES POLLU- TION CONTINGENCY PLAN

§ 300.56 Pollution reports.

(a) Within 60 days after the conclusion of a major discharge or when requested by the RRT, the EPA or USCG OSC shall submit to the RRT a complete report on the response operation and the actions taken. The OSC shall at the same time send a copy of the report to the NRT. The RRT shall review the OSC's report and prepare an endorsement to the NRT for review. This shall be accomplished within 30 days after the report has been received.

(b) The OSC's report shall accurately record the situation as it developed, the actions taken, the resources committed and the problems encountered. The OSC's recommendations are a source for new procedures and policy.

(c) The format for the OSC's report shall be as follows:

(1) Summary of Events—A chronological narrative of all events, including:

(i) The cause of the discharge;

(ii) The initial situation;

(iii) Efforts to obtain response by responsible parties;

(iv) The organization of the response;

(v) The resources committed;

(vi) The location (water body, State, city, latitude and longitude) of the oil discharge and an indication of whether the discharge was in connection with activities regulated under the Outer Continental Shelf Lands Act (OCSLA), the Trans Alaska Pipeline Authority Act or Deepwater Port Act;

or whether it might have or actually did affect natural resources managed or protected by the U.S.;

(vii) Comments on Federal or State efforts to replace or restore damaged natural resources and damage assessment activities; and

(viii) Details of any threat abatement actions taken under section 311 (c) or (d) of the CWA.

(2) Effectiveness of Removal Actions—A candid and thorough analysis of the effectiveness of removal actions taken by:

(i) The responsible party;

(ii) State and local forces;

(iii) Federal agencies and special forces; and

(iv) (If applicable) contractors, private groups and volunteers.

(3) Problems Encountered—A list of problems affecting response with particular attention to problems of inter-governmental coordination.

(4) Recommendations—OSC recommendations, including at a minimum:

(i) Means to prevent a recurrence of the discharge;

(ii) Improvement of response actions;

(iii) Any recommended changes in the National Contingency Plan or Federal regional plan.